VIRGINIA: 28.

More especially the South part thereof, Richly and truly valued: *viz.*

The fertile *Carolana*, and no lesse excellent Isle of *Roanoak*, of Latitude from 31. to 37. Degr. relating the meanes of raysing infinite profits to the Adventurers and Planters.

The second Edition, with Addition of

THE DISCOVERY OF SILKWORMS, with their benefit.

And Implanting of Mulberry Trees.

ALSO

The Dressing of Vines, for the rich Trade of making Wines in VIRGINIA.

Together with

The making of the Saw-mill, very usefull in *Virginia*, for cutting of Timber and Clapbord to build withall, and its Conversion to many as profitable Uses.

By *E. W.* Gent.

LONDON,
Printed by *T. H.* for *John Stephenson*, at the Signe of the Sun below Ludgate. 1650.

To the worthy Gentlemen, Adventurers and Planters in *VIRGINIA*.

My loving Friends:

I Thought it convenient heere briefly to minde you of these Necessaries, that if wanted there, would greatly prove your prejudice, and render you obnoxious to many evils, which are these.

Necessaries for Planters.

For Aparell: Provide each man 1. *Monmouth Cap,* 1. *Wastcoat,* 1. *Suit of Canvase, Bands, Shirts, Shooes, Stockings, Canvase to make sheets, with Bed and Bolster to till in Virginia,* 1. *Rugge, and Blankets.*

For Armes: Provide 1. *Suit of compleat light Armour, and each man* 1. *Sword,* 1. *Musket or Fowling Peece, with Powder and Shot convenient.*

For Houshold stuffe: Provide one great Iron Pot, large and small Kettles, Skellets, Frying pannes, Gridiron, Spit, Platters, Dishes, Spoons, Knives, Sugar, Spice, Fruit, and Strong water at Sea for sicke men.

For Tools: Provide Howes broad and narrow, Axes broad and narrow, Handsawes, two-hand-sawes, whipsaws, Hammers, Shovels, Spades, Augors, Piercers, Gimblets, Hatchets, Handbills, Frowes to cleave pale, Pickaxes, Nayls of all sorts, 1. *Grindstone, Nets, Hooks, Lines, Plowes: All which accommodation wherewith each to be well furnished, together with his Transportation,*

vation, which is ordinarily 6l. a man, and 3l. a tun his goods, may amount unto 20l. a man, charges.

Nor needs the carefull Adventurer much doubt what Wares may prove his profit there. For any Commodities of this Country are good Merchandize transported thither. viz. Strong waters, Haberdashers wares, Ironmongers wares, Drapers wares, Stationers wares, and many other wares which those sterill witted Americans doe easily admire. But your judgements are sufficient. And likewise I have further discovered them in the insuing Treatise of the Incomparable VIRGINIA. So wishing you all prosperous happinesse and happy prosperity heere, and in the world to come eternall blisse, I rest

Your faithfull

Servant,

E. W.

The Sea of China and the Indies.

Scala Miliarum

10 20 30 40 50 60 70 80 90 100

A mapp of Virginia discouered to y^e Falls, and in it's Latt: From 35 deg: & ½ neer Florida, to 41 deg: bounds of new England.

Sir Francis Drake was on this sea and landed An° 1577 in 37 deg. where hee tooke Possession in the name of Q: Eliza: Calling it new Albion.

Whose happy shoers, (in ten dayes march with 50 foote and 30 horsmen from the head of Iames River, ouer those hills and through the rich adiacent Valleyes beautyfied with as proffitable rivers, which necessarily must run into y^e peacefull Indian sea, may be discoverd. to the exceeding benefit of Great Brittain, and joye of all true English.

Noua Francia

A Mighty great Lake

Canada flu:

y^e Mangoacke C.

y^e Manikes C.

Ould VIRGINIA, & nem.

The falls

Massawomeckes C.

Carolana

Meridies

Chawanoke river

Matapanient river

Patuxunt River

MARY LAND the Lord Baltimors Plantation begun 1635.

Swee-ds Holla-d Plant-at~ Plant-

Noua Albion

Sassafras tree

James Towne

Nansamond river

Payankatank R:

Toppahanok R:

Potomak

Mary land river

St Maryes

Potaks river

Wighcocomoco

Nanticoke River

Checepiacke 200 miles long

The Bay of

Kent Ile

Wighcocomoco

Cape Henry

Cape Charles

Smiths Ile

The Eastherne shore or Accomac land Squire Yearleys plantation

Matsopungue river

Tokanok river

Rappahanok Riv:

Susquehanoughs Riuers

This Riuer the Lord Ployden hath a Patten of 2 and 20 miles in it new Albion

This Riuer the Ditch haue a plantation and a great trade of furrs

but the Sweeds are planted in it and haue a great trade of furrs

C Hatteras

Fets Island

Cingoteague Ile

Lord Delawars Bay and river

Cape Iames

Hudsons R.

Long Island

Cape Codd

New England

Ca. Fayre

Roanoke Ile

Indian Towne

Mangoacke

Chawanoke

Nansamond

Nanticoke

Wighcocomoco

Tokanok

Susquehanoughs

Patuxunt

Potomak

Matapanient

Toppahanok

Payankatank

Rappahanok

Matsopungue

Cingoteague

Hudsons

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New England

Ould Virginia, & nem.

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Roanoke Ile

Ca. Fayre

Meridies

Swee-ds Holla-d Plant-at~ Plant-

Noua Francia

Noua Albion

-30664-

To the Supreme Authority of this Nation, The Parliament of ENGLAND.

Right Honorable:

THis Dedication in it selfe unworthy the honour of an addresse to your Grandeurs, and of a soile too dead in shaddow to approach neere your most vigorous luster, repoſes it selfe yet upon a confidence that in imitation of that God (of whom you are in power the proper Representatives) who vouchsafed graciously to accept a poore paire of Turtles from those whose abilities could not ascend to a more rich oblation, you will be pleased to cast a favourable aspect upon this humble offering, as proceeding from a gratefull cleere and sincere intention, whose desire being strongly passionate to present Your Honours with something more worthy the auspice of a beginning Yeare, is circumscribed by a narrownesse of abilities and fortunes.

And indeed my lownesse had prompted me to have found out a more humble Patron for this Treatise; but since the Interest of that Nation you have so happily restored to its just and native liberty is the principall ayme intended in it, since the publick acknowledgement of the world unites in this common testimony, That God hath subscribed to all your Heroick and Christian undertakings with his own broad seal of Victory, with his owne field word, Go on and prosper: led you through the red sea of bloud into the Land of Canaan, into the Harvest and Vintage of Israel, since Pharoah and his mighty ones have been swallowed up in the rapid current in the hideous cataracts of their ambitious opposition; and have by loud and convincing testimonies (testimonies attracting the admiration of your friends, and confounding the malice of your enemies) made it a blessed object of your consideration, that the preservation and fixure requires a blessing no lesse sublime, and a vertue

no lesse exalted, then the acquisition and tenure of conquests, made good in the eyes of Christendome by vindicating the English Honour upon the Brittish Ocean with a Puissant Navy, a formidable subject of amazement to the Forraine Enemies of your Sion, *by a strong winged prosecution of the Irish Assassinates, a spacious lettred example to teach English Mutineers what they may expect by the red sentence of justice upon Irish Rebells: All indeavours holding forth the way to improve the interest of this Nation, are improperly addressed to any other then your selves, who as you have been the unexampled instruments of our unpinioned liberty, ought to be the sole Iudges of whatsoever may relate to our future felicity.*

We should have suspected the sincerity of History in its delineation of the Majesty which sat upon that August, *and venerable Roman Senats, after having made the Land tremble under the terrour of their Armies, the sea to labour under the burthen of their numerous Navies, after having delivered all power oppressing the universall liberty to the revenging beak of their victorious Eagles, and minted the Governments of the world by the Roman Standard; had not the Concentricity of your undertakings, had not the Homogeniousnesse of your actions and felicity, vindicated and asserted the honour of antiquity, and raysed your reputations upon so high a wing of glory, that Posterity will be lost in the same mist of jealousie and incredulity of your owne augustnesse, yet for ever want the revivall of such examples the restauration of such presidents to confirme them.*

And to the end you may in all things either parallell or transcend that Romane greatnesse, of which you are the inimitable exemplary, who inriched the heart and strengthned the armes of their Dominions by dispersing Colonies in all Angles of their Empire, Your pious care hath already layd a most signall foundation by inviting incouragements to undertakers of that nature: In the pursuit whereof let me beg the liberty in this Paper, under your Honours Patronage to publish the many pressing and convincing reasons which have and may induce you to prosecute a designe of such universall concernment.

1. It

1. It will disburthen this Nation of many indigent persons, who having formerly perhaps enjoyed a fulnesse of abused or forfeyted plenty, & at the present reduced to an inequality of such subsistence, are commonly prompted to their owne and other meas ruine by making the high wayes (which should be as publike and inviolable a sanctuary as the most sacred places) an ambuscado to innocent Travellers, by which interruption of passages, there is commonly occasioned a decay and disincouragement of commerce, and dayly examples informe us, that Prisons at present are almost as full of criminall as indebted persons.

2. It will take off all Parish charges, in providing for destitute Minors and Orphans, whereof there are at present a burthensome multitude, wherby the Parishes so freed, may with greater alacrity and ability, part with contributory moneys to maintaine, recruite, and incourage your Armies and Navies.

3. Those Orphans so provided for may by Gods blessings upon their labours become happy and wealthy instruments, advantagious to the place of their nativity in particular, and their whole Nation in generall. Whereas the condition of their birth and the usuall way of exposing them, makes them capable of no more gainfull calling then that of day-labourers, or which is more frequent hereditary beggers.

4. The Republick in its present constitution abounding with so dangerous a number of male contents, who commonly like Shrubs under high and spreading Cedars, imagine the spacious height of others to be the cause of their owne lowneſſe, may by this means be honourably secured, and such men removing their discontents with their persons, will have a brave and ample theater to make their merits and abilities emergent, and a large field to sow and reape the fruit of all their honest industrious and publick intentions.

5. It will to admiration increase the number of Ships and Seamen, (the brazen wall of this Nation) all materialls to advance Navigation, being abundantly to be furnished out of those Countries,

and the more ingenious Paſſengers by conference and diſputation with the knowing Mariner, will take a great delight, ſatisfaction, and ambition, to attaine to the Theory of that knowledge, while the leſſe capable being accuſtomed and aſſigned to an uſuall part in the toyle thereof, and inſtructed by the ordinary Seaman, will bee brought to a good readineſſe therein and ſpeedy perfection.

6. All Materialls for ſhipping, as Timber, Cordage, Sailes, Iron, Braſſe, Ordnance of both mettals, and what ever elſe we are neceſſitated to ſupply our wants with out of the Eaſterne Countries, who make it not unuſuall to take advantages of their neighbours neceſſitie, and often times upon a pretence of difference or miſintelligence betwixt us, embrace an occaſion to over-rate or over-cuſtome their commodities, or (a reall quarrell widening) ſell it to other Nations from whence we are forced to ſupply our ſelves at a ſecond or third Market.

7. It will give us the liberty of ſtoring a great part of Europe with a larger plenty of incomparably better fiſh, then the Holander hath found meanes to furniſh it withall, and will make us in no long tract of time, if induſtriouſly proſecuted, equall, if not tranſcend him in that his moſt benificiall ſtaple.

8. It will be to this Common wealth a ſtanding and plentifull Magazine of Wheat, Rice, Coleſeed, Rapeſeed, Flax, Cotton, Salt, Pot-aſhes, Sope-aſhes, Sugars, Wines, Silke, Olives, and what ever ſingle is the ſtaple of other Nations, ſhall be found in this joyntly collected.

9. It will furniſh us with rich Furrs, Buffs, Hides, Tallow, Biefe, Pork, &c. the growth and increaſe of Cattell in this Nation, receiving a grand interuption and ſtop, by killing commonly very hopefull yong breed to furniſh our markets, or ſtore our ſhipping, meerly occaſioned by want of ground to feed them, whereas thoſe Provinces afford ſuch a large proportion of rich ground, that neither the increaſe of this or the ſucceeding age can in any reaſonable probability overfeed the Moiety.

10. By

10. By it many of your Honours Reformadoes and disbanded ſouldiers being diſmiſt with the payment of ſuch part of their arrears as your owne judgement (guided by the rule of your immenſe diſburſements) ſhall thinke a convenient recompence, by tranſporting themſelves thither may change their deſperate fortunes into a happy certainty of condition, and a contented livelyhood, which will be a means not only to diſburden this Republick (as before) but to remove all thoſe clamors uſualy diſturbing your publick conſultations, and to win upon them by your bounty to invert all thoſe fearfull imprecations, with which they would (as much as in them lies) unbleſſe your proceedings, into a joyfull and fervent concurrence of prayers to the Almighty to ſhoure downe bleſſings upon your heads, who, next under him, are the glorious and viſible inſtruments of their increaſing happineſſe.

11. It will be a generous and moving incouragement to all induſtrious and publick ſpirits, to imploy thoſe parts with which God and nature hath bleſſed them in the diſcovery of ſuch happy inventions as may drive on hopefull deſigns with a leſſer number of hands then is uſually aſſigned to them, which iſſues of the brain are legitimate and geniall to beginning Plantations, where the greateſt want is that of people: but for our own or other popular Kingdoms where we are commonly overpreſt with a greater multitude of labourers then imployers, by much leſſe acceptable, ſince our indigent people look upon ſuch Engins meerly as Monoppolies to engroſſe their livelihood

12. It will adde a very conſiderable increaſe to the Revenue of your Honours own Cuſtoms, and I ſhal aſſume the liberty in all humility to offer up to your more adviſed deliberation by way of ſupplement to your incomes, whether ſuch malefactors as the letter of the law dooms to death, yet leaves a latitude for extent of mercy in the boſome of the Judges, whoſe releaſe oftentimes proves not only ruinous to them ſo diſcharged, ſince not ſeldome they returne to their vomit, but pernicious to the Common-wealth reinvaded

by their insolencies and disorders, might not be made instrumentally serviceable to the State, if (as it is frequent in other Countreys, where they are condemned to the Gallies) by way of reparation for their crime, they were sentenced to serve a quantity of years according to the nature of their offences, which expired, they should enjoy all immunities with others, and by this course be reduced and accustomed to a regular course of life. Of these a thousand transported and employed by an understanding improver, would by their labour advance an income of forty thousand pounds sterling *per annum*, at the least, and so proportionably according to their number.

That all these, and many inestimable benefits may have their rise, increase, and perfection from the South parts of Virginia, a Country unquestionably our own, devolved to us by a just title, and discovered by John Cabot *at the Englishs expences who found out and tooke seisure, together with the voluntary submission of the Natives to the English obedience of all that Continent from* Cape Florida *Northward, the excellent temper of the aire, the large proportion of ground, the incredible richnesse of soile, the admirable abundance of Minerals, vegetables, medicinall drugs, timber, situation, no lesse proper for all European commodities, then all those Staples which entitle* China, Persia, *and other the more opulent Provinces of the East to their wealth, reputation, and greatnes (besides the most Christian of all improvements, the converting many thousands of the Natives) is agreed upon by all who have ever viewed the Country: To which the judgement of the most incomparable* Ralegh *may be a convincing assertion, whose preferring of that Country before either the North of* Virginia *or* New-England, *though it may sufficiently command my submission and acquiescence; yet for more particular satisfaction be pleased to accept these reasons for such preiation.*

1. The apparent danger all the Colonies may be in if this be not possessed by the Englisth, to prevent the Spaniard, who already hath seated himself on the North of Florida, and on the back of Virginia in 34, where he is already possessed of rich silver Mines, and will no doubt vomit his fury and malice upon the neighbour Plantations, if a prehabitation anticipate not his intentions, which backt with your authority, he understands too much of your power, and is too sadly acquainted with your admirable successes and generous resolutions, not to sit downe by any affronts offered to those under the wings of your protection, to attempt any thing against such who are immediately

diately your owne Colony, leſt thereby he adminiſters matter of a fire, to which his own fortunes in the Indies muſt be a fewel, and himſelfe raked up in its aſhes.

2. But the South of Virginia having a contiguous Ledge of at the leaſt one hundred Ilands, and in the middeſt of thoſe the incomparable Roanoak, the moſt of them at the ſame diſtance from the Continent that the Ile of Wight is from Hampſhire, all of hazardous acceſſe to Forrainers, and affording a ſecure convenience from ſurprizall by the Natives, will if poſſeſſed and protected by your power, be as an inoffenſive Nurſery to receive an infant Colony, till by an occaſion of ſtrength and number, we may poure our ſelves from thence upon the Mayneland, as our Anceſtors the Saxons from the Iſle of Tanet into Brittaine.

3. It diſpences a moderate equality of heat and cold between the two violent extreams thereof in *Barbadoes* and *New England*.

It will admit of all things productible in any other part of the World, lying in the ſame Parallel with China, Perſia, Japan, Cochinchina, Candia, Cyprus, Sicily, *the Southern parts of* Greece, Spain, Italy, *and the oppoſite Regions of* Africa.

4. It hath beſides all Timber for ſhipping, the beſt and reddeſt Cedars, and Cypreſſe trees that may be found in any Countrey.

5. And laſtly, the planting of this Collony will open a moſt compendious paſſage to the diſcovery of thoſe more opulent Kingdomes of China, Cochinchina, Cathaya, Japan, the Phillipines, Summatra, and all thoſe beauteous and opulent Provinces of the Eaſt Indies, which beyond diſpute lye open to thoſe Seas which waſh the South-Weſt parts of Virginia, through whoſe boſome all thoſe moſt precious commodities which enable the Chineſie, Cathayan, Perſian, and Indoſtant Empires, may more conveniently, ſpeedily, with more ſecurity and leſſe expences be tranſported thence from Spawhawn, or other remoter Provinces to Gombroon, by a long dangerous and expenſive Caravane, and from thence to Surat, where when arrived the doubling of the Line, Calentures, Scurvies, with a long train of diſeaſes and Famine attend its tranſportation into our owne Countrey.

6. Whereas by expandeing our ſelves to both ſides and Seas of Virginia, our commerce to thoſe noble Nations lies open in ſhort and pleaſant voyages to the encouragement, enriching and delight of the Seamen, and perſonal adventurers, who will ſhare in the delicacies and profits of thoſe Kingdoms, without participating in the miſeries attending our preſent voyages thither. The Cargaſon being eaſily conveyed, by much the greater part of the way, through Navigable Rivers, and from the Eaſtern ſhore of Virginia in a month, or at the largeſt ſix weekes time into England.

And by this meanes the Hollander, Spanyard, and Portugall, who (by

the

the ſupine negligence of this Nation, and its Merchant Adventurers) do with inſufferable inſolence Lord over us in both the Indies, when they ſhall to the unknitting of their joints perceive by your nurſing care over the Infancy of your Colonies, that they are arrived under your auſpice, to cover both the Seas with numerous Navies, and your Honours eye of indulgence and providence waking to their ſecurity, will be content laying aſide all other paſſions to wave future affronts and injuries, or fall a deſerved ſacrifice to your offended juſtice.

And that this addreſſe may appear the more ſeaſonable, I have (without any privity or relation to his perſon) taken leave to intimate to your Honours, that there is a Gentleman whom the publick reputation and teſtimony of thoſe who have the happines to know him render of excellent abilities, integrity, and a never ſhaken affection to your cauſe, in all its criſis and dangers through which God with a clew of ſucceſſe hath been your conduct) who hath already undertaken for the tranſportation of ſome men thither, and only waits for your Honours approbation and authority, the world taking notice, hopes and encouragement from thence, that as this Colony is like to be the eldeſt of your legittimate daughters in that nature, ſo by your indulgence ſhe ſhall have the happyneſſe not to be the yongeſt in your affection.

May that God who hath begirt your houſe with a Grove of Lawrell, continue the advance of thoſe Victories till the whole Nation be crowned with Olives: May no ſin, no ingratitude of ours divert his protecting hand from us, his aſſistant arme from you: May the generations to come in admiration of your vertue and gratitude for their by you derived happines, make every heart your monuments, wherein to embalme your memory whilſt the Hiſtories of all Nations and times enrich their Annals with your names as the moſt ſerious and triumphant part of all examples and tranſactions. And laſtly may your owne thankfulnes to him from whom theſe diſpenſations of mercy have diſtilled like the dew of Hermon upon your heads and borders ſo continue in your boſoms, that when you ſhall be ripe for tranſlation, he whoſe inſtruments you are, may welcom you with the approbation of, Well done good and faithfull ſervant,

Which are the undiſguiſed wiſhes of

Your Honours moſt humble, obedient,

and faithful Servant. *Ed. Willian*

Virginia *in Generall, but particularly* CAROLANA, *which comprehends* Roanoak, *and the Southerne parts of* Virginia *richly valued.*

THE ſcituation and Climate of *Virginia* is the Subject of every Map, to which I ſhall refer the curioſity of thoſe who deſire more particular information.

Yet to ſhew that Nature regards this Ornament of the new world with a more indulgent eye then ſhe hath caſt upon many other Countreys, whatever *China*, *Perſia*, *Japan*, *Cyprus*, *Candy*, *Sicily*, *Greece*, the South of *Italy*, *Spaine*, and the oppoſite parts of *Africa*, to all which ſhe is parallel, may boaſt of, will be produced in this happy Countrey. The ſame bounty of Summer, the ſame milde remiſſion of Winter, with a more virgin and unexhauſted ſoyle being materiall arguments to ſhew that modeſty and truth receive no diminution by the compariſon.

Nor is the preſent wildneſſe of it without a particular beauty, being all over a naturall Grove of Oakes, Pines, Cedars, Cipreſſe, Mulberry, Cheſtnut, Laurell, Saſſafras, Cherry, Plum-trees, and Vines, all of ſo delectable an aſpect, that the melancholyeſt eye in the World cannot looke upon it without contentment, nor content himſefe without admiration. No ſhrubs or underwoods choake up your paſſage, and in its ſeaſon your foot can hardly direct it ſelfe where it will not be died in the bloud of large and delicious Strawberries: The Rivers which every way glide in deepe and Navigable Channels, betwixt the breſts of this uberous Countrey, and contribute

to its conveniency beauty and fertility, labour with the multitude of their fiſhy inhabitants in greater variety of ſpecies, and of a more incomparable delicacy in taſt and ſweetneſſe then whatever the European Sea can boaſt of: Sturgeon of ten feet, Drummes of ſixe in length; Conger, Eeles, Trout, Salmon, Bret, Mullet, Cod, Herings, Perch, Lampreyes, and what ever elſe can be deſired to the ſatisfaction of the moſt voluptuous wiſhes.

Nor is the Land any leſſe provided of native Fleſh, Elkes bigger then Oxen, whoſe hide is admirable Buffe, fleſh excellent, and may be made, if kept domeſticke, as uſefull for draught and carriage, as Oxen. Deere in a numerous abundance, and delicate Veniſon, Racoones, Hares, Conyes, Bevers, Squirrell, Beares, all of a delightfull nouriſhment for food, and their Furres rich, warme, and convenient for clothing and Merchandiſe.

That no part of this happy Country may bee ungratefull to the Induſtrious, The ayre it ſelfe is often clouded with flights of Pigeons, Partridges, Blackbirds Thruſhes, Dottrels, Cranes, Hernes, Swans, Geeſe, Brants, Duckes, Widgeons, Oxeyes, infinites of wilde Turkeyes, which have beene knowne to weigh fifty pound weight, ordinarily forty.

And the native Corne of the Country Maiz, is ſo gratefull to the Planter, that it returneth him his entruſted ſeed with the increaſe of 2 or 3 hundred intereſt, ſo facilely planted, that one man in 48 hours may prepare as much ground, and ſet ſuch a quantity of Corne, that he may be ſecure from want of Bread all the yeere following, though he ſhould have never ſo large an appetite to conſume it, and have nothing elſe to live upon. Nor is it above three, or at the moſt foure months intervall betwixt the time of planting and gathering: Planted in March, April, or May, it is ready for the Barne in June, July, and Auguſt; and of this by a provident management, you may have yeerely three or foure Harveſts. The ſtalk bruiſed yields a juice as big as Rice, pleaſant as Sugar, and the green Ears boyled in ſuch juice is comparable in agreeableneſſe to the palats to what ever our Peaſe, Sparagus, or Hartichoke, hath eyther for ſatisfaction or delicacy. Nor is the Corne difficult in preſervation, for in ſix or ſeven yeares there is ſcarce any ſenſibility of its corruption.

But leſt our palats ſhould have ſo much of curioſity as to diſlike what ever is not native to our owne Country, and wheat is juſtly eſteemed

steemed more proper this happy soyle, though at the first too rich to receive it, after it hath contributed to your wealth by diminution of its owne richnesse, in three or foure crops of Rice, Flax, Indian Corne, Colesseed, or Rapeseed, will receive the English wheat with a gratefull retribution of thirty for one increase, every Acre sowed with wheat will produce six, seven, or eight Quarter of the graine intrusted. And though Mr. *Bullocke* be pleased to under-rate at it halfe the crowne the bushell, which in the Canaries will yeeld ten and twelve shillings, and in Spaine eight, yet even in that proportion you are recompenced with six, seven, or eight pound the Acre, of which two men by a discreet division of their time, will plow, reape, and in at the least 60 Acres.

Which though it may appeare a matter of admiration, yet I shall easily make it apparant by the following Narration, in which such is the exactnesse of the Ayre in this Country, that you may have five successive Harvests of the same grain in different seasons. For though a man and a boy with much ease may plow an Acre every day, the ground being pliable of a rich blacke and tender mold, and no frosts or snowes, no usuall droughts or raines to hinder the going of the plow, yet I shall allow a month for the plowing of twelve Acres, and thus plowing in September, October, November, December, and January, you may have your severall Harvests in June, July, August, and September, which may easily bee inned by the same hands the labour not falling in a glut upon them, but the Corne ripening according to its severall seasons.

And thus by two mens labours onely you have a gratefull returne of at the least three hundred and sixty Quarters of Wheat, which will at that under rate formerly mentioned, *viz.* 2s. 6d. yeeld so many pounds sterling: Nor is there such difficulty in the threshing, as may be at first sight suspected, since it may easily be tread out with Oxen, as it is usuall in Italy and other Countries.

The first Wheat being reaped, if you desire a croppe of Barley, the same Land plowed in *July*, will returne its ripe increase in *September*, so that from one and the same piece of ground you may have the benefit of two different Harvests.

But the Rice (for production of which this Countrey is no lesse proper then those Lands which have the greatest reputation of fertility) sowed, yeelds a greater encrease with the same labour 40 A-

cres of this plowed if valued but at 7s. 6d. the Bushell, will yeeld 600l. all done by two men and a Teame of Oxen, who may by other labour in the intervall betwixt the committing the seed to ground, and its ripening, fall upon Cole-seed or Rape-seed, infinitely rich Commodities with the same facility.

The objection, that the Countrey is overgrowne with Woods, and consequently not in many Yeares to bee penetrable for the Plough, carries a great feebleneſſe with it. For there are an immense quantity of Indian fields cleared already to our hand by the Natives, which till wee grow over populous may every way be abundantly sufficient, but that the very clearing of ground carries an extraordinary benefit with it, I wil make apparent by these following Reasons.

1. If wee consider the benefit of Pot-ashes growne from ten to fifty pound the Tunne, within these twenty yeares, and in all probability likely to encrease by reason of interdicting Trade betwixt us and the Muscovite, from whence we used to supply our selves; We shall finde the employment of that very Staple will raise a considerable summe of Money, and no man so imployed can (if industrious) make his labour lesse then one hundred pound, *per annum*: For if wee consider that those who labour about this in England give twelve pence the bushell for Ashes, if wee consider to how many severall parts of the Countrey they are compelled to send man and horse before they can procure any quantity to fall to worke upon; if wee consider some of the thriftiest, and wise, and understanding men, fell Wood on purpose for this Commodity, and yet notwithstanding this Brigade of difficulties finde their Adventures and Labours answered with a large returne of profit, wee who have all these things, already at our owne doore without cost, may with a confidence grounded upon reason, expect an advantage much greater, and a clearer profit.

Nor can wee admit in discretion, that a large quantity of those should not finde a speedy Market, since the decay of Tymber is a defect growne universall in Europe, and the Commodity such a necessary Staple, that no civill Nation can be conveniently without it.

Nor are Pipestaves and Clapboard a despicable commodity, of which one man may with ease make fifteene thousand yearely, which in the countrey it selfe are sold for 4l. in the *Canaries* for twenty

twenty pound the thouſand, and by this meanes the labour of one man will yeeld him 60l. *per annum*, at the loweſt Market. If all this be not ſufficient to remove the incumbrance of Woods, the Saw mill may be taken into conſideration, which is in every reſpect highly beneficiall by this Timber for building houſes, and ſhipping may be more ſpeedily prepared, and in greater quantity by the labour of two or three men, then by a hundred hands after the uſuall manner of ſawing.

The Plankes of Walnut-trees for Tables or Cubbords, Cedar and Cypreſſe, for Cheſts, Cabinets, and the adorning magnificent buildings, thus prepared will be eaſily tranſported into England, and ſold at a very conſiderable value.

But that in which there will be an extraordinary uſe of our Woods is the Iron mills, which if once erected will be an undecaying Staple, and of this forty ſervants will by their labour raiſe to the Adventurer foure thouſand pound yearely: Which may eaſily be apprehended if wee conſider the deereneſſe of Wood in England, where notwithſtanding this great clog of difficulty, the Maſter of the Mill gaines ſo much yearely, that he cannot but reckon himſelfe a provident Saver.

Neither does *Virginia* yeeld to any other Province whatſoever in excellency and plenty of this Oare: And I cannot promiſe to my ſelfe any other then extraordinary ſucceſſe and gaine, if this noble and uſefull Staple be but vigourouſly followed.

And indeed it had long ere this growne to a full perfection, if the treachery of the Indians had not cruſhed it in the beginning, and the backwardneſſe of the *Virginia* Merchants to reerect it, hindred that Countrey from the benefit ariſing from that univerſall Staple.

But to ſhew ſomething further, what uſe may be made of Woods beſides the forementioned Wallnut Oyle, at the leaſt a fourth part of the Trees in *Viginia* being of that *ſpecies*, is an excellent Staple, and very gainefull to the induſtrious Labourer.

Nor is it a contemptible profit that may be made of Woods, if by boaring holes in divers trees, of whoſe vertues wee are yet ignorant, and collecting the juce thereof, a ſcrutiny be made which are fit for Medicinall Liquor and Balſomes; which for Gummes, Perfumes, and Dyes, and heere I may juſtly take occaſion to complaine of our owne ſloth and indulgence, if compared to the labo-

rious Spanyard, who by this very practice have found out many excellent Druggs, Paints, and Colours, meerely by bruizing and grinding Woods, probably convenient for such experiments: which if boyled, and a white peece of cloth steeped in the boyling liquor, will by its tincture discover what colour it is capable to give, and if many should faile in the tryall, yet does it not fall under the probability, but that divers noble and usefull mysteries of Nature may be discovered by some such perforations and scrutinies. Nor are the many Berries commonly of an excellent collour and lustre unfit for such experiments; since the labour is little or nothing, and the issue if succesfull of remarkable advantage. And this the Spanyard hath experimented to the encrease of gaine and reputation; and above this is so signally curious and industrious, that he hath discovered many rare and delightfull colours, not onely by the meanes before mentioned, but by bruizing and boyling divers Fish-shells, the brightnesse and variety of colours giving him a just reason to pursue such curious examens.

The French relations of their Voyages to *Canada*, tell us, that the Indians and themselves falling into a contagious disease, of which Phisitians could give no Reason or Remedy, they were all in a short space restored to their health meerely by drinking water, in which Saxifrage was infused and boyld, which was then discovered to them by the Natives, and wee justly entertaine beliefe that many excellent Medicines either for conservation of Nature in her vigour or restauration in her decadence may be communicated unto us, if projection of this stampe be so much incouraged by hopes of reward or honour, as to be put in practice.

By this Improvement of Woods, the Ground comming to bee cleared, wee have a soile fit to produce what ever is excellent in Nature, the Vine and Olive which Naturally simpathize together, will thrive beyond beliefe, nor need it be any interruption to Tillage, since the Vintage and Harvest alwayes fall but in different Reasons.

That wild Vines runne naturally over *Virginia*, ocular experience declares who delighting in the Neighbourhood of their beloloved Mulberry-trees inseparable associates over all that Countrey, and of which in this their wildnesse Wines have beene made, of these Wines if transplanted and cultivated, there can be made no doubt but a Rich and Generous Wine would be produced: But

if

if wee set the Greeke Cyprian Candian or Calabrian Grape, those Countries lying parallell with this, there neede not be made the smalleſt queſtion, but it would be a Staple which would enrich this Countrey to the envy of France and Spaine, and furniſh the Northerne parts of Europe, and China it ſelfe where they plant it not, (of which more heereafter) with the Nobleſt Wine in the World, and at no exceſſive prices.

And from this Staple 'tis not unworthy of our moſt ſerious conſideration, what an occaſion of wealth would flow upon this Nation: Virginia when well peopled being able to match Spaine in that his Soveraigne Revenue, and the State by addition to their Cuſtomes for exportation thereof according to the mode of France and Spaine, would in no ſhort time be ſenſible of this moſt ineſtimable benefit: To which if wee joyne the Profits of our Olives, wee may (Gods favourable hand bleſſing our induſtry) be the happieſt Nation in Europe.

Nor need wee be at that charge for Caske under which Spaine labours, where ever wee caſt our eyes upon this Fortunate Countrey wee may finde Timber proper for it.

For the advance of which noble Staple, I ſhould propoſe that the Greeke, and other Rich Vines, being procured from the Countries to which they are geniall, every Planter in that Countrey might be enjoyned to keepe a conſtant Nurſery, to the end when the ground is cleared, that they may be fit for removal, and the Vineyard ſpeedily planted.

Further that ſome Greeke, and other Vignerous might be hired out of thoſe Countries to inſtruct us in the labour, and left their envy, pride, or jealouſie of being layd aſide when their myſterie is diſcovered, may make them too reſerved in communicating their knowledge, they may be aſſured, beſides the continuance of their Penſion of a ſhare in the profits of every mans Vintage, which will the more eaſily perſwade them to be liberall and faithfull in their inſtructions, ſince the publick advance of this deſigne cannot miſcarry without a ſenſible loſſe to their particular intereſt.

That before their going over a generall conſultation may be had whith them what ground is proper, what ſeaſon fit, what prevention of caſualties by bleeding or ſplitting, what way to preſerve or reſtore Wine when veſſeld, which *ſpecies* of Wine is fitteſt for

for tranſportation over, or retention in the Countrey, which for duration, which for preſent ſpending: It being in experience manifeſt that ſome Wines refine themſelves by purge upon the Sea, others by the ſame meanes ſuffer an evaporation of their Spirits, joyne to this that ſome Wines collect ſtrength and richneſſe, others contract feebleneſſe and ſowerneſſe by ſeniority.

Theſe conſultations drawne to a head by ſome able perſon, and publiſhed to be ſent over in ſeverall Copies to Virginia, by the inſpection of which people might arrive at ſuch competent knowledge in the Myſtery, that the reſervation or jealouſies of thoſe Vignerons, could not but be preſently perceived and prevented.

But from hence no occaſion ſhould bee derived to breake or fall ſhort of any contract made with thoſe Vignerons, who are to be exactly dealt with in performance of Articles, every way made good unto them, with all juſt reſpects to win upon them, and the nonperformance of this hath beene the originall cauſe why Virginia at this day doeth not abound with that excellent commodity. Thoſe contracted with as hired ſervants for that imployment, by what miſcariage I know not, having promiſe broken with them, and compelled to labour in the quality of Slaves, could not but expreſſe their reſentment of it, and had a good colour of juſtice to conceale their knowledge, in recompence of the hard meaſure offered them, which occaſioned the laying aſide of that noble Staple, the diligent proſecution whereof, had by this time brought Virginia to an abſolute perfection in it, and to a great degree of happineſſe and wealth which would attend it.

And had this beene as happily followed as it was prudently intended. that excellent Country had not hung downe its deſolate head in ſo languiſhing a condition as the diſreſpect caſt upon her, till of late yeares had reduced her to. Nor had the poore Planter (who uſually ſpends all the profits of his labour in forraigne Wines) been impoveriſhed by the want of it: but with delight might have ſhaded himſelfe under his vine, reaped the benefit of it in Autumne, and buried all the memory and ſenſe of his paſt labours in a cheerfull rejoycing by his owne harth with the iſſue of his owne vineyard.

And from hence might Barbadoes, St. Chriſtophers, and all our Iſlands in the Indies, have richer, better, and by much cheaper, wines tranſported to them from a place much neerer in diſtance then Spain

or

or the Canaries) and which doubles the benefit such intercourse together, would draw them to an association in power as well as communication of Staples.

Were this brought to a just perfection no other Nation could upon a quarrell betwixt Us, and Spaine, and France, reape a benefit by selling us their Wine at a third Market. And what wee vend now for it (that being made Native to us) might be returned in Bullion, to the apparent enriching of the Common-wealth, and the impoverishing of our Enemies, or at the least Friends deservedly suspected.

All Authours of Agriculture unanimously consent that neither Arable Pasture, Meadow, or any other Grounds are so benigne genuine, or proper for planting Vines in, as those cleared Lands are, wherein not Shrubs, but Tall Trees were standing. And wee must want a parallell in any part of the World to compare with Virginia for tall and goodly Timber-trees cleared of all under Woods, to which when cleared your Vines may be removed (the very removeall of them, as indeed of all other, giving an addition to their perfection (the excellency of transplantation being more particularly insisted upon heereafter.) But in the clearing of these woods it will be a saving of labour, and a delight to the Vine, besides other profits following to leave the Mulberry trees standing there, being such a happy correspondence together such a mutuall love ingrafted in them by Nature, that wee well may conclude with this Axiome, that the same Nature joynes all her excellencies together by an association of simpathies.

Nor does she wave that her happy order in Incomparable *Virginia*, where the soile and climate that fits the one, is equally amiable to the other, their loves and hates happily according, what the one shunnes, the other flies from, what the one affects, challenges the others embraces, and were not this soile and climate most geniall and proper Nature her selfe (whose productions are never useless) would never have crowned the Virgin Brow of this unexampled Countrey, with such a universall plenty of them, or with such a voluntary League have united them every where together.

VIRGINIA *compared to* PERSIA.

BUT to illuſtrate this with another argument: Let us compare this felicity-teeming *Virginia*, as it is ſcituated from 31 degrees of Latitude to 40. with other Countries, ſeated in the ſame degrees which opens us a method of obſerving what Commodities Nations ſo planted abound with, which found wee ſhall diſcover in this excellent Virgin a diſpoſition ingrafted by Nature to be Mother of all thoſe excellencies, and to be equall (if not ſuperior) as well in all their noble Staples, as in neareneſſe to their particular enricher the perpetually auſpicious Sunne. And this to whom *Virginia* owes the publication and portract of her incomparable beauty; Mr. *Harriot* the noble Mathematician delivers us by a happy inſtance in finding out for her a noble Siſter of the ſame Latitude, the moſt glorious *Perſia*, innobled as much by this compariſon as in her Empire. And thoſe who have travelled and viewed *Perſia*, unanimouſly relate wonders of her admirable fertility in all ſorts of Graine and Fruits, with an unexpreſſible abundance of Silke and Wines: In which this her rich-boſomed Siſter claimes an equality in her plenty of Mulberries, Silke, and Gums, Vines, Maiz, Rice, and all ſorts of Graine: onely as a fuller-dowryed Siſter ſhe merits a priority in fertility, pleaſure, health, and temperature, a Virgin Countrey, ſo preſerved by Nature out of a deſire to ſhow mankinde fallen into the Old age of the Creation, what a brow of fertility and beauty ſhe was adorned with when the World was vigorous and youthfull, and ſhe her ſelfe was unwounded with the Plough-ſhares, and unweakened by her numerous future teemings.

Another eye-witneſſe of this Victorious Empire, delivers to memory that *Covazan* in a Province of that Countrey, is ſo incomparably fruitfull, that Dearths are never knowne, nor Famine ever ſuſpected in it, that in one onely City called Ery, there is ſuch an ineſtimable ſtore of Silke, that there might be bought in one day in that City as much Silke as will lode three thouſand Camells. And he is little converſant with experience or Hiſtory, who is ignorant that the abundance of Silke Native to that Countrey and Climate, is

is almoſt the ſole Staple of that mighty Empire, by which never-to-be exhauſted Treaſure of Silkes the ſinewes and vitalls of the Perſian Empire, the Sophy to the generall good of Chriſtendome, keepes both the hornes of the Ottoman Moone from compleating their ambitious Circle. And if the Engliſh Eaſt-India Company of Merchants were not wrong-byaſled by the factions and ſiniſter ambition of ſome men in Authority amongſt them, a great part of that wealthy Staple might be tranſported into England, and by that meanes diſperſed over all parts of Europe to the enriching and honour of this Nation.

The digreſſion upon this Parallell hath diverted me from ampliation upon the publick benefit, which may devolve into this republick by the Olive, which being genuine to the Vine, will by a happy conſent of nature indiſputably flouriſh in a vaſt abundance, and by a tranſportation into the warmer Regions, where the heate or ſcarcity of Cattle cauſeth a like indigence of Butter, will be a Staple of ineſtimable value, and of no ſmaller conducement to our owne ſhipping, into thoſe provinces neere the Equinox, or in thoſe voyages where the doubling of the Line either puttifies, or makes it of a taſte little pleaſing or agreeable to the palate.

VIRGINIA *compared to* CHINA.

BUt to leave Perſia and deſcend to a more wealthy and powerfull parallell, the richeſt and mightieſt Empire in the World, lies in the ſame latitude and climate with our fortunate Virginia; namely China, divided from it only by the Southſea, and (which will bee a part of another diſcourſe) not of any long diſtance from it, agreeing with it in multitude of Staples. China is ſtored with an infinite number of Mulberry trees to feede Silkewormes with, and vends ſilke in ſuch a vaſt proportion, that in one onely City *Lempo*, which ſome call *Liempo*, the Portugeſes, have with no ſmall admiration, obſerved that one hundred and ſixty thouſand pound weight of ſilk hath beene caried out in one Shippe in the onely ſpace of three Moneths.

Into *Cambula* the chiefe City of Tartary (as Authors of great

repute and credit, and one who was personally there, reports) there comes every day from China, a thousand waggons laden with silke. Nor is China lesse happy in its multitude of navigable Rivers, in its wonderfull fertility of all sorts of graine, Maiz, Rice, &c. of which it receiveth every yeere three or foure most plentifull Harvests. Rivers stored with an incredible quantity of Fish and Fowle, enriched and ennobled with numerous Mines of Gold, Silver, Brasse, Iron, and other Mettalls, Quicksilver, Nitre, Allum, Pretious stones, Pearles, Muske, Cotton, Sugars, Rubarb, China Root, vast proportions of Flax, Furres extraordinary rich. To this happinesse of soile and situation, they associate an equall felicity of parts and industry, by which they pretermit not one span of ground which they assign not to particular and profitable uses, and by an ingenious division of the ground according to the quality of the soyle, designe the drier part for wheat and barly, That which is more visited with an improving moysture, to Rice and Sugar; Ascents and Mountaines to groves of Pines and Chestnuts, betweene which are planted Maiz Panicle, and all kinde of Pulse. In other proper places are Mulberry Groves, Gardens, Orchards, Flax, and in a word no spot of ground misimployed from its proper advantage.

And that Virginia is parallell in neereneſſe of Staples, as well as neighbourhood to the sunne, to that celebrated Empire, what multitudes of Fish to satisfie the most voluptuous of wishes, can China glory in which Virginia may not in justice boast of? What Fowles can she make ostentation of, in which Virginia can be esteemed inferiour? Can China, insolent with her prosperity, solely lay clayme to a more singular honour for her affluence in Maiz and other grain, for the maintenance and luxury of her plenty-wanton Inhabitants, without an open injury to her equall, to her Mayden sister, to our incomparable Virginia? Are her Mulberries springing from a voluntary bounty of Nature lesse numerous or usefull then those to which China hath added all the assistance which could be expected from advantages of transplantation, or an industrious people? If China will descend to particulars, to compare Quantity and Quality of Fish and Fowle, Let her shew us Turkies of 50 pound weight, Let her instance an example of one hundred and fifty Fowle, to reward the labour of three charges of shot and powder, Let her publish a president so worthy of admiration (and which will not admit

beliefe

beliefe in thoſe boſomes where the eye cannot be witneſſe of the action, of five thouſand fiſh taken at one draught neere Cape *Charls*, at the entry into Cheſapeak Bay, and which ſwells the wonder greater, not one fiſh under the meaſure of two feet in length. What Fleets come yeerely upon the coaſts of New found Land, and New England for Fiſh, with an incredible returne? Yet tis a moſt aſſured truth, that if they would make experiment upon the South of Cape Cod, and from thence to the coaſt of this happy Countrey, they would find Fiſh of a greater delicacy, and as full handed plenty, which though Foraigners know not, yet if our owne Planters would make uſe of it, would yield them a Revenue which cannot admit of any diminution, whileſt there are Ebbes and Flouds, Rivers feed and receive the Ocean, or Nature fayles in (the Elementall Originall of all things) Waters.

There wants nothing but induſtrious ſpirits and incouragement, to make a rich Staple of this commodity; and would the Virginians but make Salt pits, in which they have a greater convenience of Tides (that part of the Univerſe by reaſon of a full influence of the Moone upon the almoſt limitleſſe Atlantick cauſing the moſt ſpacious Fluxes and Refluxes, that any ſhore of the other diviſions in the World is ſenſible of) to leave their pits full of Salt-water, and more friendly and warme Sunbeames to concoct it into Salt, then Rochel, or any parts of Europe. Yet notwithſtanding theſe advantages which prefer Virginia before Rochel, the French King rayſes a large proportion of his Revenues out of that Staple yearly, with which he ſupplyes a great part of Chriſtendome.

And if from this Staple the miſerable French can procure a ſubſiſtence, ſome of them a comfortable livelyhood, notwithſtanding all the private oppreſſions of their grinding Landlords, the Publick Tallies, Subſidies, Aides, Impoſts, and other hard Titles of authorized Rapine. What ſhall wee imagine the freeborne Engliſh in a Countrey where he owes no Rent to any but to God and Nature, where he has Land to ſatisfie his deſires in its extent, his wiſhes in its fertility, where free-quarter is a word onely underſtood by Report, may expect of profit and content both in this Staple of Salt, in that of Wines made in thoſe Countries, where either the Spaniſh inſolence and exactions, the French extortions, or the Turkiſh Imperiall Robberies, though in the higheſt degrees of exorbitance,

are not of force so to disincourage the Inhabitants from attendance upon the Vineyard, which notwithstanding all those Horse-leaches of Imposition, returnes them such a profit as make them keepe a middle path betweene the ascent of Riches, and precipice of Poverty.

Nor would it be such a long intervall (Salt being first made) betwixt the undertaking of this Fishing, and the bringing it to perfection; for if every servant were enjoyned to practise Rowing, to be taught to handle Sailes, and trimme a Vessell, a worke easily practised, and suddainely learned, the pleasantnesse of Weather in fishing season, the delicacy of the Fish, of which they usually feede themselves with the best, the encouragement of some share in the profit, and their understanding what their owne benefit may bee when their freedome gives them an equallity, will make them willing and able Fisher-men and Seamen.

To adde further to this, if wee consider the abundance, largenesse, and peculiar excellency of the Sturgeon in that Countrey, it will not fall into the least of scruples, but that one *Species* will bee of an invaluable profit to the buyer, or if wee repeate to our thoughts the singular plenty of Herrings and Mackarell, in goodnesse and greatnesse much exceeding what ever of that kinde these our Seas produce, a very ordinary understanding may at the first inspection perceive that it will be no great difficulty to out-labour and out-vye the Hollander in that his almost onely Staple: Which wee may also sell at a cheaper Market then in common estimation; if wee revolve the Salt to be our owne, which they buy from France, or fetch from the Isle of May, and that the very fraight of Passengers (of which allured by this improvement, and the publick approbation, there will be constant multitudes) in our owne Shippes will at the least defray 3 fourths of the charges.

I should not unwillingly heare (though I dispaire ever to know it for a certainety) that *China* did exceede us in fishing; for were it granted, wee should not imagine those watry Inhabitants so circumscribed and limited to one part of the Ocean especially the same Climate and Latitude, inviting them as not to visit our opposite shore of Southwest *Virginia* in as great variety and plenty.

And to the more curious and able Persons I shall offer what singular object it were of variety and plenty, if they would take the advantage

vantage of some tides and seasons, when the resort of fish is greatest to stoppe the Returne of them out of some Creeke perpetually flowing with Salt by Sluces, or such other invention: Heere would those great ones generate and produce till even they laboured with their owne Multitude, if permitted to increase two or three yeares, who might with very small charge be maintained, and yearely render to the proprietar an Ocean of Fish in a narrow confine of Water.

Nor were it unworthy the labour to make an experiment whether the Sturgion himselfe might not receive a kinde of Domestication in that narrow circumscript on, especially if wee let it descend into our thoughts, that (by small perforations in the sluces he perpetually admits a Renovation and change of salt Water) he may receive the same benefit of Liberty, namely variety of Water, which he delights in when unconfined, and admitting the Originall Breeder not to thrive well by such imprisoning, yet Customes ascending as high as Nature in the Breed, would make that Familiar to them, which peradventure might have been offensive to the first Spawner, and should they delight (as in some seasons of the yeare Fishes doe vary their Resorts) at any time in fresh water; A large Pond digged neare having either Springs to feede it, or Raines to fill it, might by communication of a Sluce receive both them and Salmon, when they seeke after the Freshes.

And that Fishes may be unwilded, and become Domestick, History will sufficiently informe us, wherein are delivered Reports of some who growne more particularly intelligent, were distinguisht by names, and understood themselves so called: and *Martiall* in one of his Epigrams to *Cæsar*, (I meane *Domitian*) tells the Prince speaking of Fishes so instructed, *Quid quod nomen habent & ad Magistri Nomen quisq; sui venit citatus?* And further, *Manumq; lambit*, a thing, which though a Poet, and consequently bold, even to untruths, yet he durst never have obtruded upon *Cæsar*, whom himselfe makes a party in the experiment.

And to adde something to what hath formerly beene delivered of Balsomes and Colours, why from the Livers and most unctuous parts of those more delicate Fishes, may not curiosity finde a means to extract an Oyle, which (if it be not Medicinall, though I am enclined by severall Reasons to beliene the affirmative) may notwithstanding

ſtanding artificially diſtilled after its firſt extraction prove a delicacy for the Tables of Princes and Great Ones, eſpecially for Sauces, and other Confections which Luxury hath found out for the irritation of dull and retreating appetites. But I cannot believe it to be deprived of its particular virtue in Phyſicall operations, and the induſtrious concluſions of our Anceſtors have by ſuch probations diſcovered many rich Myſteries of Nature; whilſt wee either glutted with our owne plenty of Receipts, or out of a too fond a Reverence wee pay to antiquity acquieſce in their preſcriptions, as in the *ne plus ultra*, the *Herculeſ* Pillars of Wiſedome, beyond which there were no paſſage, or elſe feare every innovation brings inconveniences in his Traine, which opinion if it had poſſeſſed thoſe our Anceſtors, the World had continued in ignorance, and muſt for ever have layne ſick of an incurable folly in the Fooles Hoſpitalls.

For what concernes the Flax of *China*, that wee may not loſe the ſmalleſt circumſtance of Parallell with *Virginia*, Nature her ſelfe hath enriched this her boſome Favourite with a voluntary plant, which by art, induſtry, and tranſplantation may be multiplyed and improved to a degree of as plentifull, but more excellent Nature: Which becauſe of its acceſſion to the quallity of Silke, wee entitle Silke Graſſe: Of this Queene *Elizabeth* had a ſubſtantiall and rich peece of Grograine made and preſented to Her. Of this Mr. *Porey* in his diſcovery of the great River Chamonoak, to the South of *James* River delivers a Relation of infinite Quantity, covering the Surface of a Vaſt Foreſt of Pine-trees, being 60. miles in length.

It had beene wiſhed that the injunction given to every Planter to ſet ſo many thouſand Plants of this kinde had been effectually proſecuted: The intermiſſion whereof hath beene a prejudice not eaſily imaginable: Nor is it yet too late to effect it, and in all probability by tranſplantation it may thrive beyond compariſon larger, and the skinne of it growne more tender and delicate, may arrive to ſome equality with the labour of the Silke-worme, if it be managed by ſuch Rules of Nature beſt ſute with its production.

For Hempe there is a naturall kinde of Hempe, a *ſpecies* of Flagg in that Countrey, from which being boyled you may ſtrippe a long and fine skinne, not onely proper for Cordage, but the finer ſort ſingularly uſefull for Linnen; of this two hundred weight hath been

beene ſent into Eugland, of which hath beene made excellent Cordage, and very good Linnen. This, by obſervation of the ſoile it growes in, and tranſplanted into Grounds of like, but richer property, would together with tht Silke-graſſe make a Staple of admirable Returne and Profit; Provided every Planter had an injunction for this, as well as the former to ſow or ſet a convenient proportion, to which his owne profit (quickned with the impoſition of a mulct in caſe of neglect) would eaſily invite him. And by this meanes would *Virginia* not onely furniſh her owne people, but ſupply other Nations with Stuffes and Linnen.

To the Braſſe of *China*, wee ſhall oppoſe the *Virginian* Copper (or Gold, for yet it is doubtfull) for by a concurrent Relation of all the Indians, juſtified to ſeverall Engliſh of Quality, particularly to the Earle of *Southampton*, in Mr. *Poryes* Narrative, to Sir *William Berkely*, all ſeconding Mr. *Heriots* Report, that within ten dayes Weſt toward the ſetting of the Sunne, the Natives of that Countrey gathered a kinde of a Red Sand falling with a ſtreame iſſuing from a Mountaine, which being waſhed in a ſive, and ſet upon the fire ſpeedily, melts and becomes ſome Copper, which they ſhew us, but as they ſay much ſofter. We ſhall only ſuppoſe it to be Copper, contrary to the opinion of divers knowing men, who apprehend it for a Richer Metall; but melting with ſuch eaſe two parts in five turning to a Solid Metall, the other three parts being peradventure not any thing of the Oare, but onely ſuch Rubbidge, as joyned to the Oare in rouling, and this falling meerely from the ſuperficies of the Mountaine, yet a Rich Copper; what eye enlightned with the ſmalleſt beame of Reaſon, will not conclude it for an extraordintry acceſſion of Wealth to this Countrey? and why may not the intralls of this Minerall be Gold. ſince the skinne and cruſt of it is Copper? Nature her ſelfe oftentimes dealing after the mode of divers great men, delighting to lay an unregarded outſide over her Richeſt Linings.

To proceed in continuation of our compariſon with China, if it abound more in viſible Silver (of which with our abundance of Staples may quickly put us into a eondition of entring into completion with) yet cannot *Virginia* in all probability be deſtitute of that Metall: For beſides divers conjectures grounded upon naturall cirtumſtances: Mr. *Gage* in his Relation of the Indies, aſſures

us that the Spanyards have found out a rich Silver Mine on the back side of Florida Westward, in 34 degrees of Latitude, and the farther they extend their search Northward, the more Rich and Pure the Mines discovered improve themselves.

Nor shall wee plead inferiority in Pearles with China or Persia, since Mr. *Heriot* assures us of a large quantity of Pearles found amongst the Natives, spoyled by their ignorance in boring of them, and defacing their orientall lustre, by exposing them to the fire. These were found amongst the Indians at Roanoak, and the Relations of the Natives on all hands unanimously concur that the South and West of this opulent Countrey was stored with such abundance and variety, that the Indians used to make and adorne Babies with them: And one of the English had collected a Bracelet of very orientall Pearle, to the number of five thousand, which were all lost in the Returne to England.

If China suppose a merit of precedency in Muske, Virginia may justly oppose them with her Musk Rat, or Muscassus, which in all probability cannot but be the same; for it is a tradition received into the Number of truhts, that the Confection of their Muske in that Countrey is bruizing and burying a certaine Creature to putrefaction, of which this Odour is effected, and it is very open to conjecture that this Musk-Rat or Muscassus, whose flesh and skinne are extraordinary redolent and durant, and of which there is an infinite plenty, by such order may be brought to the same perfection. Neither is it so improbable that this Odour should proceed from putrefaction, which is naturally an abhorrence to the Nosthrill: for if you apply too neare to the substance of the Muske, there is an occult subolency of such a putrefactive originall. Neither are all excretions of Nature in themselves offensive to the sense of smelling, for the Fluxe of the Civet-Cat is accounted amongst our most soveraigne Perfumes: And this experimented will be a Staple of noble use, and no lesse benefit.

Nor shall wee yeeld the Laurell of preeminence in Richnesse of Furres to China, if the Furres of Beavers, Otters, Martines, and above all Black Foxes (which are upon some part of this Continent) may pretend any title to Richnesse: And yet have wee beene hitherto so supinely negligent to permit the Dutch and the French to carry away most of this pretious Commodity, to trade in our Ri-

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vers, under-sell us, and which discovers either an implacable malice or insatiable avarice, trade with those Indians of whom wee have no reason to nourish any great confidence) for Muskets and Powder.

To conclude, what ever else China may presume to boast of: Whether Nitre, Allum, Quicksilver, Rhubarb, and China Root, of which some wee have already discovered: If wee consider the parallell in Latitude, the equality of temperate Climate, the parity in soile, and its fertility, the similitude in brave Navigable Rivers, the unanimous congruity and consent in divers knowne Commodities, wee shall have an ample basis to ground conjectures upon, that what ever singularity of Nature that Nation may imagine her selfe Victorious over others, will be found equall in this Garden of the World, this æmulous Rivall of China, Virginia: And the Chineses may with as great justice deny the Europeans the benefit of both eyes, as boast that they precede in any thing except Antiquity of habitation, and a long experienced industry, this great Luminary of the new World Virginia.

What ever other commodities, the Novelty of inhabiting this amorous Virgin hath made it appeare defective in, as Sugar, Indigo, Cotton, Ginger, and other advantageous Staples, wee shall appeale to all who have seene this unexampled Countrey; (we meane Roanoak, and the more Southerne parts, and those Countries towards the fertile Mangoack) whether it be guilty of any contrariety, distemper, or extremity which might hinder their production. The Sunne, which in other Countreys makes his visit in Flames and Droughts, heere casts his auspicious Beames, and by an innocent and complementall warmth, courts the bosome of this his particular favourite, hastening and disposing its wombe for ripe productions which salute him in an absolute perfection. Winter Snowes, Frosts, and other excesses, are heere only remembred, never known. The purling Springs and wanton Rivers every where kissing the happy soyle into a perpetuall verdure, into an unwearied fertility: no obstructions in your expectations, attempt and hope them, prosecute and enjoy them.

Nor have we in design to lay any imputation upon the Barbadoes, which already aboundeth to admiration, with the Staples last mentioned, yet it will become our charity to wish the Country as health-

full, as it is fruitfull; that it may answer the expectation and merit of its most industrious and publicke spirited Planters, who have given a brave example to all, by the effects of their industry and unwearied constancy. From a thing almost lost to memory, (at the least to reputation) they have rayſed the honour of that Island, to be a subject of admiration for wealth and Staple, and that so little a circumference of Ground should be able to vent the value of two hundred and fifty thousand pound yeerely, as some Merchants have maintayned, not only addes to the weight and measure of their just estimation, but increases the favourable wishes of all lovers of industry, that they had a larger proportion of ground to improve upon.

And if an invincible sloth doth not possesse us in Virginia, (wee meane the South) why should not wee rayse an equall or greater profit upon as fertile and convenient a soile? especially if we consider the populousnesse of the place, has so rayſed the price of Land there, which we have heere gratis, where number of inhabitants doe so little take from our abundance, that they adde to our wealth, security and plenty, and the sole meanes to increase and improve upon Staples.

We have made it apparant that what ever China hath of Staple or delicacy, is produced or producible in this above-example Virgin. But to shew that even China her selfe must in some things give place to this more happy Mayden, *Terra sigillata*, or *Lemnia*, (as peculiar an income to the Grand Signiors Treasury, as that of Salt is to the French Kings) and of which China can no way boast, is native to this Countrey; Vines are eyther not naturall, neglected, or not understood by the Chineses, but in this incomparable soyle the Grape presents it selfe every where to your delighted prospect. And what shadow can there be of scruple that Wines well cultivated, and issuing from a rich Grape, will not be as commodious a Staple to that voluptuous and gluttonous Nation, who wanton away their wealth in banquets, as the Wines of France and Spain are to the more Northerne and lesse abstenious Nations of Europe?

There needs no objection be made against this Staple; for the Southwest part of Virginia being once discovered, the Sea laid open and that passage compleat in all its numbers, the pleasure of the commerce, the richnesse of returnes, and the extraordinary quicknes of the profit, will invite so many to come over and plant that commodious

modious quarter of Virginia: that as we ſhall never labour with too numerous a multitude of inhabitants, ſo we ſhall not have any great occaſion to complaine of the paucity of Planters.

Nor is Tobacco in thoſe Indian ſeas (eſpecially cured as in Virginia, and of that ſtrength and excellency) a commodity of inconſiderable commerce, particularly if wee call to minde what gayne there is by the exchange for Indian commodities, ſo that any ordinary underſtanding may comprehend that although Tobacco ſhould yeeld but three pence the pound in India, yet by way of barter with thoſe Nations where the returne quadruples the value in England, the gaynes gotten by it might be very conſiderable.

But if we may beleeve Printed Relations (and the perſon delivering it ſo cleerely, is, in my opinion, worthy of all credit) Tobacco from Surat to Moco yeeld ten for one profit, returned in Eaſtridge feathers to England you have ſix to one profit; but this is for thoſe Planters who are ſo infected with that diſeaſe of the Countrey that they cannot admit of any other Staple, though more gainefull and leſſe laborious. Yet is not Tobacco without its vertues: for the Spaniard hath found out, beſides the uſe of it in ſmoke, (or the ſmoky uſe) that the juice thereof (when greene) appl.yed to any wound cut, ſore, and without any diſtinction, whether greene, feſtered, or cankered, will heale it ſpeedily, and almoſt miraculouſly; the leafe bruiſed or ſtamped, and applied to any bite or ſting of a venemous quality, to any wound made by a poyſoned arrow, the green leafe heated in hot aſhes, and layd upon any part of the body afflicted with aches, will worke effects anſwerable to the moſt powerfull operations of Nature.

The Benefit and part of the Silke-worme myſtery treated of.

BUT to ſhow to the World that wee may equall the beſt of the Weſterne Kingdomes in this noble myſtery of Nature the Silke-worme: That France and Italy are much below this Migſon of Glory and Profit, the univerſally advantageous Virginia, wee ſhall upon thoſe infallible demonſtrations of Nature, make evident, having

ving the clew of truth, reaſon, and modeſty to direct us.

It will not be denied by any, whoſe forehead is not too brazen, that no Countrey is ſo proper for adventitions as its owne Native Commodities, the ſeeds of things ſuffer a deterioration by changing the propriety of that ſoile which was geniall to them, and the exact order of Nature ſuffers a diminution, if wee imagine any other Climate or Region more proper for the perfection of any thing, then where it is originally produced.

Tellier affirmes that this myſtery of the Silke-worme hath not been experimented in Europe above a thouſand yeares, being tranſmitted to our Climate out of the Aſiatick World, in ſo much that Italy hath not beene above 200 yeares enriched with this induſtrious Creature, France received it from Italy, and it is obſerved, that the warmer the Region, by ſo much larger and ſtronger encreaſe and texture receive they from the labour of this admirable and naturall Weaver. France being of a colder temper then Italy, their Wormes are weaker, in the more Northerne part of that Kingdome from one ounce of ſeed they profit five or ſixe pound of Silke increaſe, worth at the leaſt 10s. *per* pound, in Languedock, and the warmer Provinces the ſame quantity is increaſed to 7. 8, or 9l. but in Breſcia, of Calabria ſeede, they uſe uſually to make eleaven or twelve pound of Silke from the ſame originall proportion.

The poore people in both thoſe Kingdomes buy their Mulberry leaves to feede this profitable and induſtrious Spinner, and the very charge of thoſe leaves amounts to a full halfe of all other their expences.

The Nobility of Italy and France (the Grand Duke of Tuſcany himſelfe deſcending into a part of this profit) make up a conſiderable part of their Revenue from their Trees, the Leaves of every one being valued according to their goodneſſe and quality, from five ſhillings to twenty and upwards, ſo that divers make an income of three, four, five, ſometimes a thouſand pound, from the ſole profit of their Mulberry trees.

The Grand Duke from the ſale of his, rayſes an income *communibus annis*, of ſixty thouſand Ducats,

Yet divers Gentlemen in Italy make a larger increaſe of profit, by ſetting out their Mulberry trees to neceſſitous people, for halfe the gaine ariſing from the worme ſo fed. Thoſe poore contribute their

their seed, employ their labour, and are at all expences in bringing the silke to perfection; yet notwithstanding when completed, the Gentleman who sets out his Trees, divides the moyety of the entire profit, for the hire of his Leaves only, yet are these people, maugre this difficulty, comfortable gayners.

And the same *Tellier* is bold to affirme, that *non obstante* the disagreeableness of the Country to that worme, in the Kingdome of France from the sole revenue now of Silke, arises a greater intrada then from their Corne, Oyle and Woad put together, which grow in that Kingdome in vast proportions. And another French Author affirmeth, that the benefit of the Silke worme, (of which France hath had no triall till within these fifty yeeres) ariseth to four Millions *per annum*, sterling, and this he pretends to have all circumstances of truth and certainty, drawne from an exact computation to confirme it.

If France (an almost improper Countrey for this improvement) can rayse within the verge of fifty yeeres, so large and numerous a revenue, what shall we imagine Italy (a warmer Region, and by much more convenient, although not altogether Native for this inriching creature) may meerely upon this Staple returne in their Treasury, having besides the advantage of Climate, a hundred and fifty yeeres precedency in the mystery, and their seed more strong, better fed, and lesse subject to diseases and casualties?

But Virginia a Countrey which Nature hath no lesse particularly assigned for the production, food, and perfection of this Creature then Persia or China, stored naturally with infinites of Mulberry-trees, some so large that the leaves thereof have by Frenchmen beene esteemed worth 5l. in which the indigenall and naturall Worme hath beene found as bigge as Wallnuts, and the using in the South thereof in admirable plenty and excellence; if this mystery were but duly followed, and industriously promoved, might be a Magazine for all the Westerne World, and singly in her selfe outvy France, Spaine, and Italy, in all their advantages collected.

Heere the Leaves are onely sold by nature, who requires no other satisfaction then industry to make use of her bounty. Timber to erect their Fabricks is provided, and costs no more then preparing a benevolent Sunne, and a Serene Sky, contributing their indulgence to its perfection. No narrow assignation of Ground (richer then

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the moſt fertile France or Italy can pretend to, or boaſt of) to plant thoſe Trees on, if not neare enough to the ſetled Plantations ; in briefe, all the conveniences imaginable to aſſiſt and advance this to the Nobleſt Commerce in the World, if neglect and ſloth make us not ingratefull to our ſelves, and nature, by abuſing our ſelves, by not uſing her bounty.

To further this happy deſigne, let us deſcend into an unequall compariſon : Let us compare our moſt incomparable Virginia, where the Mulberry and the Worme are aboriginall to Italy, where they are onely adventitious : Let us imagine our owne Worme of that ſtrength and greatneſſe onely equall to thoſe of Breſcia and Italy, where the uſuall ofcome from ſixe ounces of ſeede is 72, ot at leaſt 60 pound weight of Silke, and adhearing to this Parallell ; let us ſee the apparency in the profit.

A man and a boy, if their hands be not ſleeping in their pockets, will feede as many Wormes as come of ſixe or eight ounces of ſeed till they be paſt their foure firſt ſickneſſes, and within ſome 14 dayes of ſpinning : Indeed the laſt 14 dayes require a more extraordinary diligence and attendance, a more frequent and carefull feeding, becauſe in that time they conceive, gather, and ſtore up the diſpoſing matter from whence the Silke comes, which by an incomprehenſible myſtery of Nature, they after as it were vomit out of their mouthes, and ſpinne out of their bowells. At this more particular ſeaſon, there is a neceſſity of adding the labour of three or foure helpes more (to which Women or Children are as proper as Men) which is an inconſiderable acceſſion conſidering the gaine ariſing from it.

That you may know the reaſon why Women, Children, lame and impotent perſons are as fitting to attend the laſt fourteene dayes, as Men, will appeare by their labour, which is nothing but to feede them within doores, cleanſe, dry and perfume their lodgings, with ſome ſtrengthning but not overſtrong odour.

And as one skilfull in this noble myſtery is ſufficient for the employing, overſeeing, and directing hundreds under him, ſo (the skill being rather experimentally to be taught, then built upon long and ambiguous precepts) he may bee able to perfect all thoſe under him, within the five or ſix weeekes time of their imployment in the full underſtanding the myſtery. And the better to incourage both

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the teacher and learner of the myſtery, the maſter ſhould be invited by reward to be liberall in communicating his knowledge, and thoſe under his inſtruction encouraged by arguments of honour and profit propoſed to the beſt proficient, would diſperſe ſeeds of emulation and diligence, ſince every one would imploy himſelfe ſeriouſly to engroſſe and appropriate to himſelfe the reputation and advantage in the victory.

And in boyes and children, diſputations frequently ſet on foot, with ſome ſlight diſtinction of merit, would make all that are ingenicuſly diſpoſed, quicken their obſervation and diligence, to gaine the credit of prelation. Though to take off all diſincouragement or deſpayre, from thoſe leſſe apprehenſive and docible, in this noble and gainefull Trade of Silke, there is no ſuch abſolute neceſſity layd upon them to be ſuperſticiouſly and preciſely curious in obſerving the Booke Rules, and written Precepts, that upon the omiſſion or unpunctuall obſervation of any of thoſe Precepts in hatching, lodging, feeding, and tending of the Silke-wormes, wee ſhould imagine ſuch minute deviations might occaſion an improſperity or generall failing: for wee will admit ſomething may be wanting either in materialls, accommodation, or preciſeneſſe of knowledge; yet may the worke (a higher and irreſiſtible cauſe not interrupting it) proſper and ſucceede, notwithſtanding ſuch defect, to the great contentment and gaine of them which keepe them.

Let us imagine it to be granted that the indigency of the perſon improving the incommodiouſneſſe of the place, or want of Houſe-roome, which the Bookes exactly tye us to, be in many things preterregular (though ſuch a ſuppoſition may fall upon any other part of the World more juſtly then Virginia, where all materialls and conveniency anſwer our exacteſt wiſhes) yet will dayly examples confirme us, that in Languedoc, Provence, and other parts of France, and as many in Spaine and Italy, amongſt the common ſort of that exaction tyred people, that one poore low-rooft Cottage, and one Roome in it is all the houſe extent they have to take their ſleepe in, dreſſe their miſerable dyet, and ſerve themſelves of for uſe and retirement; yet does this induſtrious Creature (ſuch are the bleſſings with which God rewards the ſweat of Induſtry) thrive as happily (and ſometimes anſwer labour with a greater felicity) as thoſe which the curioſity of Richer perſons fit with all commodiouſneſſe

of Chamber feeding, and attending, which is a ſpeaking encouragement that no man ſhould deſpaire, but repoſing a cheereſull confidence in the bleſſing of the Almighty, with this Reſolution, that what ever meanes, what ever curioſity, art, or precept, may contribute towards the preparing and facilitation of a worke, yet the end, the event muſt depend on his eternall goodneſſe to crowne it, and all our labours projected with never ſo great a Talent of humane wiſdome and experience, muſt conclude with this never failing truth: That except the Lord build the houſe their labour is but loſt that build it: Except the Lord keepe the City, the Watchman watches but in vaine. Wee muſt therefore lift up our hearts and eyes with thankefullneſſe unto the Hills, unto the Mountaine of Iſrael, and Rock of *David*, from whence thoſe ſtreames of bleſſings muſt acknowledge their ſole, their originall Fountaine, which may ſerve as an admonition, that neither the whole, nor any part of the worke ſhould be begunne without applying our devotions to him: Let it therefore be the Morning Omen to the worke, and the Evening auſpice, Lord proſper the worke of our hands, proſper good Lord our handy workes. After the Repoſall of this confidence in God; let him apply himſelfe with his greateſt induſtry and ability, with this comfort and aſſurance, that he cannot but make a conſiderable returne: Though wee ſhould be much injurious to Art (the noble right hand and Midwife to Nature) if wee ſhould deny a more promiſing probability of a riper and fuller gaine the more curious and obſervant he is in following all the approved experiments, Rules, directions, and precepts thereunto belonging.

But the chiefeſt aime and intention of thoſe Rules are to illuſtrate the perfection of this Art, and to informe your knowledge, and better your future experience and preventionall care, if any miſadventure arrive, or miſcarriage in the Silke-wormes, or if they proſper not equally this yeare with the laſt; for by inſpection upon them you may underſtand the cauſe and reaſon of ſuch miſadventure, and with it the remedy; and this alſo takes away all diſpaire or diſincouragement for men, commonly men till they are convinced in the naturall cauſe of a diſaſter or failing attribute, all ſuch miſchances to Nature, or elſe impute the non-thriving to their owne misfortune by a ridiculous opinion that they are not ordained to be fortunate in this or that Myſtery, ſo freequently does Fortune incurre the blame

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of humane neglect or ignorance.

Beſides wee are to imprint in our knowledge, that no Rules can have ſo much of generality and exactneſſe, which will not admit of deviations ariſing from ſome particular and variable circumſtances. Wee muſt not therefore conforme the nature of the Climate to our Rules, but our Rules to it, in which wee muſt reſume to your deliberation how, and in what one Climate differs from another, how the conſtitution of this yeare varies from the next, or the precedent, the immediocrities of heate, cold, drought, and moiſture, ſerenity, or miſts, &c. The manner of their lodgings, the quality of the winde to be admitted or excluded: To temper a ſeaſon inclining to a preternaturall cooleneſſe with an artificiall heate, to refreſh and infrigidate the Aire in times of immoderate heate, by admitting the cooling Aire and Windes proceeding from a cooler Quarter, and this to be obſerved with a more particular care; when they ſpinne their Silke, that Creature then being very obnoxious to be ſtifled with too much heat.

There muſt be likewiſe a providentiall regard in a moiſt ſeaſon, that the Mulberry leaves be carefully dryed after their gathering, before they be adminiſtred for food to the Silke-worme: But if the ſeaſon pertake more of drought it will be wiſedome to let the leaves lye and ſhade a little after their gathering, that they may have them coole and refreſhing, and in ſeaſons of temperature and continued droughts, it may be very requiſite to water the Roots of the Mulberry-tree, which will be a refreſhing to the leaves, and this is uſually practiſed in Spaine; eſpecially if the Mulberry-tree be ſeated in a hot or dry ground, which otherwiſe muſt not be ſo preſcribed without particular caution.

Nor is it below our conſideration to weigh the condition of the place in which the Mulberry is planted, if in a ſower foule or wet ſoile to collect what inconvenience that food may bring unto your worme, and therefore if your neceſſity will admit it to avoyd ſuch wholly, if not to uſe them with ſuch qualifications as may make them leaſt offenſive.

After having regard to the nature of the ground your Tree receives its juce from, the quality of the ſeaſon, in which you gather them; it falls next to your conſideration to compare the kinde and nature of the Tree, together with the kinde and nature of their

ſeed, worme, and ſilke, and directing your ſelfe by an exact obſervation of particular circumſtances, ſo to make exceptions and to order every thing with judgement and diſcretion thereafter, that your Bookes and experience may by that meanes walke hand in hand together.

But time and obſervations will affoord you many experiments, out of which perhaps ſome more rules of Art may be framed, in divers particulars, more conſenting to the Country and Climate of Virginia. Which finding, after good triall thereupon made, it will become the reputation of a good Patriot in generall, and a good Maſter of a family in particular, to digeſt them into ſuch a regular order and method, that the publication thereof may be a common benefit to all, and a private memoriall to particulars.

For ſince in Perſia and China it does not fall under likelihood, that they can oblige themſelves to obſerve all particulars in its ſtricteſt limitation, where ſuch an infinite quantity of ſilke paſſeth through the hands of the people, it is very agreeable to reaſon that in a Climate of the ſame nature and parallell, namely Virginia, there may be rules found out of far leſſe brevity, and more pertinency, then have yet been conſidered or publiſhed.

And yet where all theſe Rules are curiouſly obſerved, they make not onely in Spaine and Italy, but in the colder parts of France a far greater gaine (the quantity of adventure and time conſidered) by thus chargeably feeding of Silk-wormes, then by any other commodity whatſoever.

But to avoid that inconvenience of fetching leaves a far off, or attending the growth of your owne Mulberries, or that neceſſity which makes the poorer ſort of our owne miſerable people to lodge them in that Roome which is their Kitchin, their Chamber, their all. With what eaſe and conveniency may there be a houſe ſet up in the middle of a Grove of Mulberries, naturally growing, where the Silkewormes, in a dry Cabinet of Boords, after the maner of Sicily, may be kept (deſcribed more largely in the Bookes which treat of this Silkeworme, then can bee expected in this paper) ſet up with ſtones in it, in caſe the Countrey and ſeaſon require it, eyther to correct the ill ſents, or (if ſo be they are ſeated in cold, moyſt, or ſhady places, of which your owne ſenſe and experience will quickly acquaint you) to give the ayre a temper and qualification, which if not

prevented

prevented, may destroy your worke by killing the Silkeworme.

And this Lodge built for them, the season of the yeere will invite your selfe and family (I meane such part of your family as you assigne to this worke) to lodge there also, the time being at the most but six weekes, and for the first moneth, one third of your family will be sufficient to feed them, but the last 14. dayes; the other 2. thirds will be requisit that the wormes may bee more often and plentifully fed the well feeding at that time contributing much to their strength and perfection, and consequently to the improving your expected silke, both in quantity and quality.

That all may be invited and courted to this undertaking, in this glorious Countrey, Nature hath left us destitute of no materialls. To erect these slight silken lodgings, will be no more expences, then your labour; nor is that any greater, then to cut out some posts and studdes, fit them, and set them up, then to cleave and saw out small quarters, rafters, plankes, pales, and boards, to make and set up the sides of the house, in stead of more substantiall walls, and to cover the roofe in stead of Tile. For the effecting of all which with the lesser trouble, that Countrey affords abundance of Woods, which will runne out, slit, and cleave into long lengths and breadths, which by the directnesse of the Ground will rive in a manner, as if they had beene sawen for the worke. All which must be so close layd, joyned, and nayled together, the one still lapt over the other, that no Winde or Raine may penetrate therein to offend that laborious Creature, and this may easily be prevented, if such chinkes and open places as you shall discover bee stopped up with Lome, Clay, and Lime, of which materialls in those Countreyes you will finde no want. And to this purpose the Indian Mats, and the like things may be made good use of in this way, which will be sure to keepe out Winde and perhaps Raine: But to these things your owne inventions, *pro re nata*, will abundantly furnish you with matter of preventing casualties: Nor will it bee unseasonable to repeat the extraordinary convenience of Saw-mills, which in this case will be in a high degree serviceable to you, and of this the whole Colony will be beneficially sensible in boards, Plankes, housing, Silk-worm-lodgings, Timber, shipping, and all particular kinde of uses.

And this once erected, with what speed may such a house be clap-

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ped up together, with a few nailes one lopping over another, either ong like a Bowling-Alley, that the functions of the Family may be distinct, and no offensive heat or sent disturbe the Worme in his curious operations.

Or being in doubt of surprisall, some Families going into the Woods together may equally joyne together, and those woodden houses (still observing that the Roomes where the wormes are may be set end and end together, that so the Kitchins and their lodgings may be still the two extreames) may be cast into the forme of a Fort which pallisadoed, and your house sentinelled by halfe a dozen of good Dogges, wilbe a sufficient defence against all the Natives of the Countrey.

And this may be in case they worke not in common, which if by compact they agree upon, the Lodging for the wormes may be cast in the middle of such a circle, the Timber houses round about shading them from over much heat, wind or moisture, and the necessary fires there made, will throughly cleere the ayre of all vapours and mists which may disorder this innocent Spinner. The Silke Harvest ready, and the encrease brought to a just estimation: The Cohabitors may according to the agreement made betwixt them, returne with their Dividends, and this removall into the Woods will have the same nature of content which the Citizens take in a time of vacation and City wearinesse (Citizens being never so weary as when they have no worke) to visit the delights of the Countrey, though with different ends; since these in their Voyages of pleasure expend, the other both save and encrease their stock and treasure. These Boards (the worke ended) being taken downe are serviceable for seaven yeares together, and easily erected or renewed.

I am not altogether of advice, that the Indians be hired to assist you in these Remoter Workes, as sensible how apt they and the Divell their Tutor may be to embrace an occasion of being treacherous: but if they could be brought to worke by Parties (well watched and Spyes amongst themselves set over them) in the middest of our most populous Plantations, with their Wives and Children who will easily runne through this curious, but not heavy labour and may be sufficient pawnes for the Indian fidelity, if cunningly divided, they would be very serviceable in this kinde for a small Reward, and peradventure might be made great use of for

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this worke heereafter by undertaking it themſelves, which may be manifeſted for theſe Reaſons.

1. Firſt, the Indian is naturally curious and very ingenious, which they ſhew in all their works and imitations: the only thing that frights them from bringing any work to perfection, is the labour attending it.

2. But to feed his curioſity, there is nothing in the world more proper then this curious atome of Nature the Silkeworme: to ſee this unt ught Artiſt ſpin out his tranſparent bowels, labour ſuch a monument out of his owne intralls, as may be the ſhame, the bluſh of Artiſts, ſuch a Robe that Solomon in all his glory might confeſſe the meanneſſe of his apparell, in relation to the workemen, cannot but bring them to admiration; and that thoſe ſpi i s whoſe t oughts are of a higher wing then ordinary, may bee convinced of a divine power of the hand of God in the Creation: which gaynd upon him, it will not be impoſſible to drive him to an acknowledgement of Redemption, if private ends or any other reſpect then that to Gods glory, poſſeſſe not thoſe who ſhould cover a multitude of ſinnes, by winning a ſoule to his Creator, and forcing him from the jawes of his Deſtroyer.

3. In this curioſity there is little or no labour (a thing which they abhorre) their women and children will bee ſufficient to goe through with it: and if they could but be brought to it, our Trade with them for ſilke would be of greater conſequence, then all their Furs or other commodities put together.

4. By this meanes it were poſſible to faſten Cloaths upon them, which if once it were effected, that which Mr. *Bullocke* excellent patly calls, The Univerſall not of Nature, Ambition would cement them to a more orderly courſe of life, and one ſtill ſtriving to outvie the other in bravery of habits: there would be no labour under Heaven like this, to reduce them to civility. the toyle thereof being inconſiderable, and the profit great to him in reſpect of his now trifling Merchandiſe: and to us by trading with them, might bee returned for 5s. the pound at the moſt in commodities.

5. By this means would he be brought to plant great quantities of Mulberry trees round about his Plantation, which according to his conſtant inconſtancy, evermore ſhifting, would neceſſarily, our owne numbers increaſing, fall into our hands and poſſeſſion, or if he

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ſhould againſt the tide of his nature abide by them, yet a very inconſiderable trifle would buy the propriety from him.

6. The Silkeworme harveſt lighting at ſuch a ſeaſon of the year, wherein he by improvidence hath waſted all his Bread-corne, at which time he uſually retires into the Woods to ſeeke a thinne ſubſiſtence, by the allurement of this great profit he would undoubtedly ſtay at his Plantation, and allow us a ſhare in his increaſe of Silke, for ſuch proviſion of Maiz as would maintaine him, and this would be a large acceſſion of profit to the Engliſh.

7. Admitting Virginia in its whole extent from *Cape Henry* Southward (as a worke ſo eaſily compaſſed, and ſuch profit enſuing thereupon, eſpecially to the Weroances or Reguli, who have many Wives, Slaves, and Children, would hardly faile from being a univerſall labour) to containe in all thirty thouſand people, of which the fourth part or more men, if this Staple be followed by them, and our vigilance preventing any Traffick of other Nations with them, it will yeeld the Colony of courſe a trade with them worth cleare a hundred thouſand pound *per annum.*

Neither doe I comprehend a ſufficient Reaſon why in ſo happy a Climate as that of Virginia; there may not be a double Silke Harveſt: This I am ſure of, that there are ſecrets in Nature of retardation as well as acceleration of Springs, and both being induſtriouſly brought to the experiment, the acceleration anteceeding the firſt Spring, and the retardation poſtvening the latter by three weekes, (which may eaſily be effected by election and diſtinction of ground to plant in) and at the latter end of the Harveſt the ſeeds being diſpoſed and ripened for production, will without doubt produce an effect anſwerable to the moſt ineſtimable profit intended by it.

That the election of Ground may doe this, wee may ſee by frequent examples betwixt things well cultivated, and that which is never tranſplanted from its firſt wildneſſe, and there are many preſidents round about us, where in one and the ſame Towne, one and the ſame fruit have oftentimes three Weekes diſtance of time betwixt their unequall maturity; the naturall warmeneſſe or coldnes of the Ground occaſioning the advance or procraſtination of fruits according to its ſeverall diſpoſition.

Nor can ſuch a courſe be any interruption to Harveſt or Vintage, both comming much after the ſeaſon of the Silke-worme, though

I ſhould (in ſubmiſſion to better judgement) conceive that with tranſplantation of trees (ſuch as they would have come later then ordinary, for that purpoſe being looſed from the Ground neare upon the aſcent of their ſap would ſpring for that ſeaſon accordiug to their expectation later then is uſuall, and the next yeare its novelty of ground having made it wanton will come much earlier, and more improved then thoſe whoſe fixure to the place of its firſt pullulation keepes it ſelfe to its former conſtancy, and by this meanes the later Harveſt would not be at the moſt three Weekes time after the (uſuall) income of the firſt.

And without doubt the Chineſes and Perſian could not vend ſuch vaſt quantities of Silke, with which they fatſhion ſo huge a part of the World with one ſingle Harveſt, which though wee are at preſent ignorant of, yet what ſhould diſcourage us from delivering ſuch conjectures to a tryall, ſince the examen of it is not without probability, nor the diſcovery without an extraordinary certainety of profit?

Thoſe who will object that notwithſtanding 2000 years practice Italy hath not diſcovered this myſtery, or if diſcovered, found it deſtitute of ſucceſſe, may be pleaſed to receive this Anſwer: That there is an immenſe diſproportion betwixt the happyeſt Region of Italy, and the South of the excellent Virginia. Italy (and that annually) is ſubject much to inclemency of Winters, in reſpect of our more temperate Maiden, where Snows and black Swans are alike Prodigies; the cold there is rather like a Phletomy to tame the Plethorick abundance of Springs, then dead it: Nor are the Springs of Italy ſo early as ours in that Climate, and the Mulberry ſhooting forth later then all other Trees by much, may by this meanes of tranſplantation and heat of ſoile, be equall with the firſt, and by that early apparence give day-light to this and other more abſtruſe Magnalia.

I have inſiſted ſo much the longer upon this Myſtery of the Silkworme, becauſe (if it were handled by a better pen, judgement, and ability) it is every way noble and ſublime, ſo much worthy the knowledge, not onely for the benefit (which is extraordinary rich how ever) but for the admiration of Nature, who hath abteviated all the Volums of her other Miracles into this her little, but exact Epitome, like that Artiſt who contracted the whole body

of Iliads and Odyſſes into a Nutſhell.

Beſides what wee have ſayd of Silke wee ſhall find the Indian profitable to himſelfe, and as in the Staple of Wines, of which when he has received the whole knowledge, wee cannot make the leaſt tittle of doubt, but he will with all eagerneſſe proſecute it: Firſt, becauſe it concernes his belly, to which no people under Heaven are more indulgent; and ſecondly, his Wife and Children who plant his Corne may take the charge of the Vineyard with not much more labour. But that which turnes to our advantage is, that the Indian communicating the knowledge of the Grape to his Neighbours, and they tranſmitting it all along as far as New Spain, will ſtir up the Spaniſh jealouſie to interdict all Viti-culture amongſt them, and as far as the extent of his power can fathome to proſecute ſeverely all ſuch Natives as ſhall make it a ſubject of their induſtry to the prejudice of Spaine. This muſt of neceſſity make ſtrong combinations and leagues againſt the Spaniſh Tyranny, which though they are not of themſelves able to ſhake off, yet will the Spanyard feare to extend himſelfe further (except in ſuch ſtrength as at preſent his condition denies him) knowing the Indians untinguiſhable thirſt of Revenge, and his laying hold of all opportunities to put it in execution, with all the powers of his underſtanding cruelty and malice.

And thus ſhall the Spanyard in caſe he attempts our ſupplantation be conſtantly diſcovered by the ſiding Indian, and if there be a neceſſity to prevent his malice, by turning his deſigne upon his owne head, infinite occaſion of intelligence may wee have from the enraged Native, how to attaque him in his ſtrongeſt ſecurity, where either the diſtance or impaſſability of the way will make him confident and careleſſe.

Further uſe may be made of the Native in fiſhing after Pearle, to which if wee allure him by a conſtant Trade with him for them, his owne profit will quickly enlighten his deſire of more, and that deſire quicken his induſtry.

That Virginia affordes multitude of Pearles, Mr. *Lane* is ſufficient to give publick information, where he tells us a Relation delivered to him of a Weroance, who had ſo great quantity of Pearle, and did ſo ordinarily take the ſame, as that not onely his owne skinnes that he weareth, and the better ſort of his Gentlemen and Fol-

Followers are set with the sayd Pearle ; but also his beds and houses are garnished with them, and that he hath such quantity of them that it is wonder to see: These are Mr. *Lanes* words exactly.

Nor is there any difficulty in the discovery of this, or ingrossing the Trade; especially since wee are the Masters of the Countrey, and if any other Nation should attempt to partake in the benefit of our Trade, the strength of Virginia is at present such as may repell by violence, all Forraigne incroachments upon their trade and livelyhood.

The Indians unanimously consent that twenty two miles beyond the Falls, is a Rocke of Chrystall, and this they evidence by their arrowes, very many whereof are headed with it. And that 3 dayes journey from thence, is a Rocke or Hill of Silver Oare. Beyond which, over a ledge of Hills, by a concurrent Relation of all the Indians, is the Sea, which can be no other but that Sea which washes the shore of China, &c.

That this report of a great Sea Southwest beyond the Mountains, cannot have the least of fiction or confederacy, since all the Indians from Canada to Florida, doe unjarringly agree in the Relation, is obvious to the meanest apprehension.

The discovery whereof, if we fall upon it by degrees, will bee a worke of no long time or difficulty, but the unexpressible profit and glory of the action, will rayse the noble head of this above example Countrey to such a high Zenith of wealth, power, and lustre, that it will be reputed a very remarkable degree of felicity to any Nation which shall reach to such a Verticall point of glory, as to bee reputed but our second in these most noble considerations.

By this meanes what wealth can there be in those richest provinces of the World, in those Countries which Nature created for her Cabinets of excellency, which we shall not discover? What discover without a power of Appropriation? What opulency does China teeme with which shall not be made our owne by the Midwifry, by the Juno Lucina of this virtuall passage? This by a happy transmigration, by an innocent Magick will convert that Countrey, (which by a swelling denomination, yet without not some pretence of Reason its Natives call by a Title signifying all under Heaven) into our Maid of admiration and envy Virginia. Her Silke-worm shall spinne for Carolana, her Cloth of Gold be weaved for Roa-

noak. The Engliſh name ſhall keepe company with the Sunne, and thoſe Nations who owe him a particular adoration ſhall honour it as the next thing ſacred. The Eaſterne Nations oppreſſed with the ſlavery of thoſe illuſtrious horſeleeches their princes, will come under our ſhadow, and by a thicke repayre to our moſt glorious and happy Mayden, live with us in that liberty, which Nature in their Creation intended to the nobleſt of his creatures Mankind. And by this recourſe all thoſe curioſities of Art, in which thoſe Eaſterne Nations tranſcend Europe, will bee conveyed to us with their perſons. Cattell and Horſe in which they abound, will bee ſold to us for nothing. for European trifles, whileſt the more neceſſary Staples of this our Weſterne World, will be ſold at advantages not convenient to be mentioned. The voyage ſhort, eaſie, rich, and pleaſant. No doubling of the Line, no calentures, ſcurvies, or other long-paſſage diſeaſes, to affright or diſtaſt the laborious Seaman: whereas now the enfeebling and deſtroying of Mariners is almoſt an unavoidable conſequence of thoſe long and dangerous, rather circumferences then voyages.

But leſt we ſhould ſing a Pæan before a Victory, it will not bee unworthy our labour to diſcourſe what meanes may be uſed in this Diſcovery. Which if it ſhould miſſe in its proſecution, (for which fayling there is not the leaſt ſhadow of probability) yet might carry a vaſt profit to recompence all your paynes and expences.

That it muſt not bee attempted at the firſt heat, but muſt have more recourſes then one to the fire of a Triall, will bee made apparent by theſe reaſons.

Firſt, the inconveniency or non feyſibility of carrying ſo much proviſion as will ſerve the Diſcoverers, whoſe number, in my opinion, cannot bee lower then two hundred, if wee let ſlide into our deliberation the many unknowne Nations, through whoſe territories we are to make our paſſage, and which by common eſtimation, are much more numerous in the Inland, then Marine Countreyes.

Next, admit wee undertake and compaſſe it with ſuch a number, yet the diſcovery not being capable of ſecreſie amongſt ſuch a multitude of undertakers, the publick reſentment of ſuch a felicity approaching, not ſuffering people to be ſilent; wee ſhould have this arrive to the Spanyards knowledge, who will roule all ſtones under

Heaven

Heaven to diſpoſſeſſe or prepoſſeſſe, and indeed the danger his Peru, Chili and Philippines, by ſuch ſeating, may lie obnoxious to, will adde ſpurres to his inclination to prevent us, which till wee bee in in a condition to reſiſt, may be effected with our abſolute ruine.

The ſafeſt way therefore is, by degrees to ſteale upon the deſign, and take our way thither, by ceaſing of places of advantage, very frequently found in that Contry, which we may progreſſionaly fortifie at every twenty or five and twenty miles diſtance, and to theſe places we may conſtantly ſend ſupplies of victualls and ammunition, not only for the men there Garriſond, but for our owne reception and maintenance in the Diſcovery: and theſe men ſtanding continually upon their guard, may (I meane thoſe moſt remote) by conference with the Indians, diſcover with much eaſe, of what diſtance, what acceſſe, what harbours, what frequentation, and by what people the neighbour Sea conſiſts of; to take with them exemplars of all Mineralls, Drugges, Dies, Colours, Birds and Beaſts, drawne to the life in colours, which (by an invitation of reward) will be a ſurer meanes of diſcovery, (if any ſuch be) then by multitudes of people, whoſe number commonly (as in the example of *Fernando Soto* in Florida) haſtens no other diſcovery, but that of unavoydable famine, and being uſually, either through neceſſity, or a diſordred maner of living irregular and ungoverned, fright the inhabitants from all commerce and conference, or elſe make them join in a confederacy to abuſe and remove them by telling their unwelcome Company, golden lies, and miracles of Countreys farther diſtant, where they are likely to find ſmall ſatisfaction for their covetouſnes or hunger.

Reaſon and experience will condemne us of folly, if wee ſhould refuſe to profit by commendable examples, though proceeding from Enemies or Friends ſuſpected: It will be therefore an incitement irreproveable to commend to our owne imitation the Cuſtome which the induſtrious Spanyard practiſeth in his deſigne of diſcoveries: Every one of the aſſociates carry a little horne about their necks in ſuch journeys, by which meanes if the errour of the night or thickeneſſe of the Woods occaſion any ſeparation betwixt them, or an Ambuſcado of Enemies make the paſſage doubtfull, by winding of that Horne, preſently notice is given to the reſt, who upon receiving the ſound give the firſt winder notice of their reſidence,

to which they may repaire, or testifie their apprehension and readinesse to prevent all hostile stratagems.

The same indefatigable Nation in their passage over Rivers, presently make themselves light Canoas after the Indian mode, with which entring themselves and swimming their Horses (whose heads they keepe above water by a coller fastened to the Boat) they overcome difficulties of currents, which to any other but those seeme insuperable, and indeed their labour in this kinde show them of admirable Resolution and Constancy.

Though wee may entertaine grounds of hope and confidence, that this discovery of the South Sea may be made without any tedious Land-journey, since it is certaine that from the great confluence of Waters in the Gulfe of St. Laurence, foure mighty Rivers receive their sourse, the first whereof pouring it selfe North into Canada, another running Eastward into the Sea called Hunsons River, the third running Westward into the Maine are already discovered, but the fourth upon which wee have reason to fixe high expectation bending Southward to Florida, washes all the backside of Virginia, and may in all probability discharge it selfe into the South Ocean, which if it suit with our conjectures, Virginia will have by that meanes a double accession of security and convenience.

For our security it will be a naturall bar betwixt us and the jealous Spanyard, who if he shou'd injustly continue the possession of our Florida, which is indisputably English; yet thus dividided from us by a vast River full of Islands, and places convenient to command the Channell fortified and maintained by our Nation, he is too full of providence and caution to attaque us, if once in so good a posture.

For the conveniency which sufficiently speakes it selfe the ease of transportation by water, and all in our owne Chanell, the saving of Land charges, and probability of a more speedy passage, are prespicuous arguments to commend it.

And to confirme the probabilities of this passage by the Lake the more strongly, the Indians of Canada confessed to *James Cartier* that it is but a Moneths sayling, from thence to go to a Land where Cynanon and Cloves are gathered. Others told the same person, that from the place where they left their Pinnace, there is a River which goeth South-West, from whence there is a whole Moneths sayling

ſayling to go to a certaine Land, where there is neither Ice nor Snow ſeene, where the Inhabitants doe continually War one againſt the other, where there is great ſtore of Orenges, Almonds, Nuts, and Apples, with many other ſorts of Fruits. What ever beliefe other men beſtow upon this Relation, I know not; but truely in ſuch a generall concordance of Reports, where there can be no roome left for confederacy or deſigne, to be perſwaded of the truth therein, cannot have any vitious tincture of facility or credulity.

But it is time to remit theſe high and noble atchievements to the proſecution of thoſe who have more power and ability, who may give ſuch a diſcovery the honour of their names, and transfer a perpetuall illuſtrious memory to poſterity, we ſhall onely ſuppoſe it faiſible and hope the effects will anſwer ſuch ſuppoſition.

Which if it ſhould faile, why may not Virginia in her future felicity of ſilke be a new China and Perſia to Europe? why may not all the ſpicery of the Eaſt flouriſh with an equall ſucceſſe in this our moſt juſtly tempered Climate? already can Virginia boaſt of Cinamon, which if tranſplanted might not be inferiour unto any? why may not the Cloves perfume Virginia with as aromatick redolency as the Philipine Gardens.

Our aire is more ſerene, better tempered then theirs, nor have we any more ſenſe of Winter to hinder the aſcent of ſap then the Moluccians, if it be any thing more harſh in cold, yet is it but a check to a peradventure too forward Spring. What multitude of flowers have our late Gardens in England ſeen non native to this ſoyle or Climate? Fruits thought ſolely proper to Italy and Spaine flouriſh here to the envy of thoſe Countries, who ſee often times the Colonies in a happier degree of proſperity then the Mother, for Fruit and Flowers.

But theſe deſignements muſt be the Daughters of time, curioſity and induſtry, to whom away may be made paſſable, and eaſie, by that uncabinetting and deciphring of Nature, Garden Philoſophy, what harſh diſpoſition in the World will not be lenified and refined by theſe curious concluſions? *Dioclesian* could poſtpoſe the ſcience of governing Mankinde to the knowledge of managing his Scions, to ſee thoſe Plants grow up, which his own laureld hand had ſet, watred and attended, and accordingly flouriſh, was in a manner the production of ſo many Children, who in this have the advantage,

that

that their floreſcence is not ſubject to ſelfe-deprivation, give them but an acceptable ground a bounteous Aire, and an arriding Sunne, and they anſwer the moſt exact deſires of the Setter or Ingrafter; but Children, let them have all the Auxiliares of a full Fortune, warmth of education, and heat of encouragement, by ſome private diſeaſe of the genius, by ſome ſecret malignity in nature, or its right hand cuſtome, ſeldome or neuer thrive according to the wiſhes of the Parent, they are either too ranke with inſolence, too much parched with raſhneſſe, or withered with infamy and luxury, that thoſe which planted them inſtead of delight in that which they eſteemed their Maſterpeece, have nothing but a Spring of indignation, or an Autumn of Melancholly to anſwer their expectation, and are ſo far from contentment at their groweth that they would have reckoned it amongſt the Smiles of their Fortunes, that no warmth of theirs had contributed to their production, no indulgence to their continuance and education.

Theſe allurements are for thoſe whoſe delights onely are intereſted and denoted to this retired activity; but thoſe who looke further will finde (that which is rarely or never contingent to other contentments) this pleaſure to be attended with an ineſtimable profit, and one of the moſt certaine returnes in nature: But this fertility-labouring Countrey, eſpecially in its Southerne beauties, in its Roanoak excellencies, like to a Princeſſe, all compos'd of Bounty, ſuffers no addreſſe to be made unſatisfied. Gentle Winters to court your ſeed, warme Springs to marry them to perfect Maſculine ripeneſſe, nothing but ingratitude and indiligence to delay or divert its liberality, hitherto (like thoſe confined Virgins in a barbarous Seraglio) it hath ſuffered the imputation or injury of ſterility by a non-complacency in its Savage Amouriſts, the abundance of perfection having put them into a ſatiety or incapacicy of enjoyment.

The truth of this being abundantly manifeſt, an apparent profit and delight inviting the able and induſtrious; neceſſity muſt be the next Argument to thoſe whoſe Poverty can pleade no excuſe for their indiligence; yet this laborious neceſſity is not ſo ingratefull as in England, and in other more thick-peopled Countries, what ever you ſweat for in this bounteous Region, is crowned with a recompence amazing your expectation; ſuch things as make poverty and life wearieſome, contempt of, or impoſſibility of any melio-

ration

ration to their condition are things heere never charged upon honeſt indigence, or denyed to a commendable induſtry, nor can they palliate their ſleepe and ſloth with a pretence of wanting materialls to worke upon, or plead that ſuch things as ſhould employ them muſt be firſt had out of England, ſince there is enough abundantly and naturally in that unpreſidented Countrey to employ their induſtry, to enrich their labour.

Though Silke-graſſe is unqueſtionably a Staple which will bee Neighbour to the profit of the Silke-worme, though the naturall Hempe-ſlagge may be a Merchandize in time equal to Engliſh Flax, though the Sartaparilla be an extraordinary vendible Commodity, though Pipeſtaves be ſo beneficiall, that with not many drops an extraordinary workeman may make his labour worth ſixty pounds *per annum.*

Though he has fiſh there, and in ſuch abundance that the attending diligently upon two ſeaſons, onely returnes him a Reward of one hundred pound ſterling in Sturgion, Salmon, Herings, Mackrell: Pot-aſhes a rich and never decaying Staple, &c. Yet ſince againſt this an objection may be made what courſe they may take for their proviſionall ſubſiſtence. Thoſe who apprehend ſuch doubts will be pleaſed to receive this anſwer, in which if they are ſenſible of Reaſon they cannot faile to receive ſatisfaction.

There is no man will ever be denyed the loane of Corne for his houſe-ſpending, and ſeed till the Harveſt; if he be a ſingle man he may prepare as much ground if cleared, and ſet as large quantitie of Corne for his owne ſpending and repayment of what borrowed, in two dayes ſpace as will abundantly ſuffice him twelve Monethe.

Admit there be no cleared Ground, yet if he but unbarke the Trees one foot round after the Indian mode to prevent the ſhade occaſioned by the leaves, which ſuch unbarking quite deſtroyes, the Corne (ſet betwixt thoſe Trees) will thrive and proſper exceedingly, and their ground thus prepared will laſt ſeaven or more yeares ſucceſſively, and this worke cannot laſt him above five dayes at the longeſt.

If he have a Family, his Wife and Children will be able to beare part in that labour, and many others.

For Proviſion of fleſh, if he can uſe his peece he may, even at his

labour in the Woods, have opportunity of killing Veniſon, Hares, Wild-foule (in their ſeaſon innumerable) and Fiſh, of which the Rivers are all times plentifully furniſhed, and of great delicacy; if in all this abundance he is yet apprehenſive of Famine, wee ſhall refer him to the number of thoſe who are afraid to be ſtarved for meat in a Cooks ſhop.

Beſides what a ſmall ſumme of money will buy your Cattell, and Swine in Virginia? Whoſe feeding coſts them nothing but thankes to God, who has ſpread that ſuperficies of that noble Countrey with perpetuall friut and verdure. Poultry in infinite variety and plenty, the forbearance of whoſe encreaſe for a ſmall terme of years will make them ſo numerous, that they may alwayes have a full table.

The Weſt-Indie Potatoe (by much more delicate and large then what wee have heere growing) beſides that it is a food excellently delicious and ſtrongly nouriſhing, fixes himſelfe wherever planted, with ſuch an irradicable fertility, that being ſet it eternally grows: of this an extraordinary pleaſing and ſtrong drinke may bee compoſed.

Nor is the Maiz leſſe commendable for bread then malting, of both which in its uſe it affordeth a peculiar goodneſſe and convenience: And I am much to learne how a poore man can in juſtice complaine of want, when he is as it were beſieged with ſuch plenty: This for proviſion may abundantly ſatisfie, but if he can be content to forbeare debauches and profuſeneſſe for the firſt three yeares he may by any of the meanes aforeſaid arrive to ſuch a condition of thriving, that he may allow himſelfe a large latitude of expences (that firſt three yeares once expired) without much empairing his fortunes.

But ſince all men either by conſtitution of age, oppreſſion of yeares, or different education, are unable or improper for the Fiſh-net or Hatchet, I ſhall offer them a way which may be leſſe laborious and peradventure more gainefull; yet before I deſcend to this, I muſt take leave by digreſſion to enlarge ſomething which I have already hinted on, namely the benefit of tranſplantation.

The removing and tranſpoſition of Wild Plants, doth with an experimented happineſſe wonderfully mitigate and engentile their leſſe noble nature; whether (as an Authour delivers it very elegantly)

ly) it be by reaſon that the nature of Plants, as of men, is deſirous of Novelty and peregrination, or becauſe that at their parting from their former grounds they leave there that ranke wildneſſe virulency and ill quality from the Foreſt, where is firſt rooted the gratefree novelty and allurement of a well cultivated ſoyle makes it receive a new by exiling it from the old ſavageneſſe and indomeſtication of its firſt ſeat and nature.

Since then the removing of wild Plants addes ſo much to their improvement and melioration confirmed by naturall Reaſon and unerring experience: Why may not the diligent labour by removeall and tranſpoſing this excellent Staple of Silke graſſe, make it thrive equally in greatneſſe and goodneſſe, there needes no more art to be uſed then that of comparing the ſoile (tranſplantations into worſe grounds being naturally improſperous) and though there appeare now ſomewhat of trouble (though nothing of labour) in peeling the ſilky skinne of, yet that it may be broken as Flaxe or cleared by ſome Inſtrument (the Commodity richly rewarding the nobility of any invention) to this purpoſe; time and further experience will no doubt to the publick enriching of the Colony and this Nation make apparent. In this any one which is not ſworne a ſervant to eaſe and ſloth, may with a ſmall toile reape a conſiderable profit.

Next, what will not thoſe Vines produce if well husbanded after their tranſplantation, and in this moſt delightfull labour the gain is ſo appareut that almoſt the blindeſt judgement may perceive it.

Orenges, Lemons, Pine-aples, Plantanes, Peaches, Apricocks, Peares, Aples, in a word all ſort of excellent Fruits will grow there in full perfection; you may ſleepe whilſt they are growing, after their ſetting or engrafting, there needes no more labour but your prayers, that they may proſper, and now and then an eye to prevent their caſualties, wounds or diſeaſes.

Sugars, Indigos, Cotton, and Ginger, require a greater induſtry; but if wee conſider the difference betwixt the two Climates of Barbadoes and Virginia, the immoderate heate of the firſt and the exact temper of the other, the labour though it may require as freequent handling, yet is by much leſſe toyleſome.

In a word, if a man be yet timerous of a thriving condition in

this Countrey; I shall with his pardon believe him, distrustfull of Gods providence; or if he be so vitiously disposed as to hope after a Land where he may enjoy an undisturbed plenty without the sweat of his browes, the Maps are so extreamely deficient in the description of such a Countrey, that I must desire him to looke for a new World and Kingdome, for such an easie accommodation.

If any make an Objection why this Countrey stored with all these Riches, furnished with all these Staples, hath so long held downe her head in the lowneſſe of a desperate condition? Why being capable to crowne her browes with Garlands of Roses and plenty, she sate desolate amongst the Willowes of neglect and poverty? Let them but recall their Memory, how by the prevailency of *Gondamore* the Corporation was dissolved, their patent cancelled, to which if wee adde the cooperation of the Indian treachery in their first massacre, they will cease their wonder at its languishing condition, and convert it to a full admiration, how that Colony could ever raise her endangered head out of those Gulfes of distraction, in which the Gold of Spaine, the discouragement of the Court, the discontent of the better sort of Planters, and the desperate negligence of the more inconsiderable had in humane opinion irrecoverably involved her.

But the incomparable Virgin hath raised her dejected head, cleared her enclouded reputation, and now like the Eldest Daughter of Nature expresseth a priority in her Dowry; her browes encircled with opulency to be believed by no other triall, but that of expeperience. her unwounded wombe full of all those Treasuries which indeere Provinces to respect of glory, and may with as great justice as any Countrey the Sunne honours with his eye-beames, entitle her selfe to an affinity with Eden, to an absolute perfection above all but Paradize.

And this those Gentlemen to whom she vouchsafes the honour of her Embraces, when by the blessings of God upon their labours fated with the beauty of their Cornefield, they shall retire into their Groves checkered with Vines, Olives, Mirtles, from thence dilate themselves into their Walkes covered in a manner, paved with Orenges and Lemmons, whence surfeited with variety, they incline to repose in their Gardens upon nothing lesse perfumed then Roses and Gilly-flowers. When they shall see their numerous Heards

wanton

wanton with the luxury of their Pasture, confesse a narrownesse in their Barnes to receive their Corne, in bosomes to expresse fully their thankefulnesse to the Almighty Authour of these blessings, will chearefully confesse: Whilst the Incomparable Roanoak like a Queene of the Ocean, encircled with an hundred attendant Islands, and the most Majestick Carolana shall in such an ample and noble gratitude by her improvement repay her Adventurers and Creditors with an Interest so far transcending the Principall.

A valuation of the Commodities growing and to be had in *Virginia*: valued in the year, 1621.

And since those Times improved in all more or lesse, in some ⅓, in others ½, in many double, and in some treble.

IRon, ten pounds the Tun.
Silke Coddes, two shillings six pence the pound.
Raw silk, 1 3s 4d. the pound, now at 2 5s. and 28. *per* pound.
Silke grasse to be used for Cordage, 6d. the pound: but we hope it will serve for many better uses, and so yeeld a far greater rate, wherof there can never be too much planted. Of this Q. *Elizabeth* had a silke Gowne made.
Hemp, from 10s. to 22s. the hundred,
Flax, from 22s, to 30s. the hundred.
Cordage, from 20s. to 24s. the hundred.
Cotton wooll, 8d. the pound.
Hard pitch, 5s. the hundred.
Tarre, 5s. the hundred.
Turpentine, 12s. the hundred.
Rozen, 5s. the hundred.
Maddet crop, 40 s. the hundred: course madder, 25s. the hundred.
Woad, from 12s. to 20 the hundred.
Annice seeds, 40s. the hundred.
Powder Sugar, Panels, Muscavadoes and whites, 25s. 40. and 3l. the hundred.

Sturgeon, and Caveare, as it is in goodneſſe.

Salt, 30s. the weight.

Maſtick, 3s. the pound.

Salſa Perilla wild, 5l. the hundred.

Salſa Perilla domeſtick, 10l. the hundred.

Red earth Allenagra, 3s. the hundred.

Red Allum, called Carthagena Allum, 10s. the hundred.

Roach Allum, called Romiſh Allum, 10s. the hundred.

Berry graine, 2s. 6d the pound : the powder of graine, 9s. the pound : it groweth on trees like Holly berries.

Maſts for ſhipping, from 12s. to 3l. a peece.

Pot-aſhes, from 12s. the hundred, to 14. now 40. and 35s. the hundred.

Sope-aſhes, from 6s. to 8s. the hundred.

Clapboord watered, 30s. the hundred.

Pipe ſtaves, 4l. the thouſand.

Rape-ſeed oyle, 10l. the tun, the cakes of it feed Kine fat in the Winter.

Oyle of Walnuts, 12l. the tun.

Linſeed oyle 10l. the tun.

Saffron, 20s. the pound.

Honey, 2s. the gallon.

Waxe, 4l. the hundred.

Shomacke, 7s. the hundred, whereof great plenty in Virginia, and good quantity will be vented in England.

Fuſtick yong, 8s. the hundred.

Fuſtick old, 6s. the hundred, according to the ſample.

Sweet Gums, Roots, Woods, Berries for Dies and Drugs, ſend of all ſorts as much as you can, every ſort by it ſelre, there being great quantities of thoſe things in Virginia, which after proof made, may be heere valued to their worth. And particularly, we have great hope of the Pocoon root, that it will prove better then Madder.

Sables, from 8s. the payre, to 20s. a payre.

Otter skins, from 3s. to 5s. a piece.

Luzernes, from 2s. to 10. a piece.

Martins the beſt, 4s. a piece.

Wild Cats, 18d. a piece.

Fox skins, 6d. a piece.

Muske

Muske Rats skins, 2s. a dozen : the cods of them will serve for good perfumes.

Bever skins that are full growne, in seaſon, are worth 7s. a piece.

Bever skins, not in seaſon, to allow two skins for one, and of the leſſer, three for one.

Old Bever skins in Mantles, gloves or caps, the more worne, the better, ſo they be full of fur, the pound weight is 6s.

The new Bevers skins are not to bee bought by the pound, becauſe they are thicke and heavy Leather, and not ſo good for uſe as the old.

Pearles of all ſorts that ye can find : Ambergreece as much as you can get : Criſtall Rocke : ſend as much as you can, and any ſort of Minerall ſtones, or earth that weighs very heavy.

Preſerve the Walnut trees to make oile of, & cut them not down: ſo alſo preſerve your Mulberry and Cheſtnut trees very carefully.

In the month of June, bore holes in divers ſorts of Trees, wherby you ſhall ſee what gums they yield, and let them bee well dried in the Sun every day, and ſend them home in very dry caske.

FINIS.

THE TABLE.

THat Virginia is parallell with China, and the happiest Countries of the East and Westerne World in scituation, and if not superior, equall to the best in exactnesse of temperature. Page 1.

That it is stored with all sorts of Timber for structure of Houses, building of shipping, and all other uses, whether of necessity or ornament. Ibid.

That the native fruits of the Country are various and delicate. Ibid.

That the Virginia Sea affords Fishes for number and tast comparable to any other. p. 2.

That the Native Beasts of the Land are many, the Flesh of most excellent, the Hides of divers usefull, and the Furres extraordinary rich. ibid.

That divers Harvests may be made of Corne in one yeare, with the meanes, and the generall quality of the soyle. p. 2.

That two mens labour in Virginia may be worth 360l. per an. p. 3. 4.

That Rice will there flourish with extraordinary increase. ibid.

That Pot-ashes, Pipestaves, and Clapboard may be made there in great abundance and equall profit. p. 4. 5.

That the Iron Oare in Virginia is equall to the best of any other Nation, and that Iron Mils will be of great advantage & profit. p. 5.

That divers rich Dyes, Colours, and Drugs may be found out there, and the way which the Spaniard useth for this discovery. p. 5.

That Vines grow naturally all over the Countrey, which may make a rich Wine. p. 6.

That Virginia will admit and improve the most generous Grapes of any other Countrey, whether Greeke, Italian, or Spanish, with the means to undertake and advance this Staple. p. 7. 8. 9.

That Virginia is comparable to Persia. p. 10.

That she is by Nature made capable of all those excellencies of China, to which she is compared, from p. 11. to p. 21.

That the art, use, and excellency of the Silk-worme is more convenient to be set on foot in Virginia, then any Country in Europe. p.21.
That the Silke-worme is as naturall to Virginia, as Persia, or China. p.23.
That Mulberry-trees proper for this Mystery grow there by nature. p.10.
That it may with much facility be set on foot, and with great felicity brought to perfection. p.29.
That in this the Indians may easily be brought to be coadjutors. p.31.
That Virginia may admit of a double Silk-harvest. p.33.
That the Silk-grasse of Virginia may prove a Staple of incomparable richnesse. p.16.
That there is a naturall Hempe in Virginia excellent for Cordage and Linnen. p.16.17.
That there is a rich Copper (with great probability of a Golden) Mine in Virginia. ibid.
That there is great probability of rich Silver Mines. p.18.
That Sugar, Cotton, Ginger, Indigo, and Pepper will grow in the South of Virginia with equall fertility, and much more conveniency then in Barbadoes. p.19.
That Muske and Civet may both be made in Virginia. p.20.
That from the Terra Sigillata, *equall in goodnesse to the best, will be yeelded an incredible Revenue to the undertaker, and that it is there in vast abundance.* p.20.
That there is no exact necessity to observe all the prescribed rules written by Masters in the Silk-worme mystery; that example and observation will diminish the number of these rules, and the conveniency of Virginia for that Creature may much abreviate them. p.25.26.27.
That all the Spiceryes of the Philippines and other Countries may grow in Virginia in equall felicity, the place affording as happy, an aire, and a soile fitting in its variety for their general production. p.39.
That the excellencies of transplantation to meliorate what ever transplanted may be with lesse charges and greater probability of thriving in Virginia, then elsewhere made experiment of. p.39.
That ground may be prepared even in woody places for setting Corne, Vines, and Potatoes, without any eradication, or felling of trees, with great speed and little labour. p.41.

That

That there is a Rock of Chrystall in Virginia, already discovered, and the place where. p 35.

That if the English wil but equall or imitate the industry of the Spaniard, what ever has been discovered in New Spaine, Peru, and Chili may be (by meanes there set down) laid open to such their attempts.

That as the Indian may be invited to practise the Silk-worme mystery, so with as probable hopes of successe he may be gained upon to plant the Vine and Olive. p.34.

That his planting the Vine will cement him to the English to the disadvantage of the Spaniard. ibid.

That the South west Passage may easily be found out by a constant intelligence and information of the Natives: from whence a trade and commerce may be driven with China and Cathaya. p.38.

That a fishing trade may be driven in Virginia, which for excellency and plenty may be greater then that of Holland, and in conclusion to make the Staple of fish a rich, delightfull, and unlaborious knowledge. p. 13. 14. 15.

That Salt in Virginia may be made in greater abundance and conveniency, then at Rochel. p.13.

That some parts of Virginia abound with Pearle, and that the Indian may be serviceable in fishing for them, himselfe allowed a small share in the profit arising from so rich a Merchandise.

That who ever can but satisfie for his owne transportation, needs not trouble himselfe for any stock to set up with, since so many severall wayes are proposed for his enriching and maintenance.

Lastly, it may evidently appeare through all the passages of the whole booke, that Virginia duly considered for exactnesse of temperature, goodnesse of soyle, variety of Staples, and capability of receiving what ever is produced in any other part of the World, gives the right hand of preheminence to no Province under Heaven.

AS a Supplement to all which, since so many objections have beene, and are dayly made, lest a wilful silence might believe their scruples as authentick as reason it selfe; such as have beene made to me have had this answer returned them, with which I desire to satisfie and communicate to all others who may have the same doubts.

Why rather doe wee apply our ſelves to the South of Virginia, then the North? Why to a new where in probability all things may be wanting, rather then an old Colony where already there is great abundance?

To this may be returned, that the South of Virginia is more proper then the North, by reaſon of its fertility and aptneſſe to produce all thoſe Staples of Sugar, Cotton, Ginger, which the colder aire in the North will not permit to flouriſh: That the South is more proper, may appeare by the large quantity of Palmetoes which have been found there, who cannot flouriſh in any Countrey in which there may be ſo much as an appearance of Winter.

Neither need wee ſo much feare a want or non-abundance in this new Colony, our neareneſſe to Virginia and New England being able plentifully to furniſh us with all ſort of Cattle at a cheaper rate then in England, and the very reputation of this place once planted will quickly invite ſo many men as know by experience or information the excellence of the place, to remove what ever is theirs out of thoſe more cold Countries to joyne iſſue with us in the better Sunbeam'd Carolana.

Another objection is, what ſecurity wee may expect from the Natives, who looke upon us as Intruders upon the Land of their Nativity, and ſeeing the South of Virginia in like manner to be poſſeſſed as the North, whether they will not in all probability attempt what ever rage, malice, and treachery can dictate to them to oppoſe the beginnings of ſuch poſſeſſion to our extirpation, to which they will be more enabled (ſay they) ſince wee are at the firſt ſeating not likely to be ſo numerous, or ſo well fortified to reſiſt them, as in the North of Virginia, where already they have committed two maſſacres notwithſtanding the length of yeares to ſecure the implanters, and their large numbers.

Wee ſhould attribute too much of the Bug-beare to the Indian armes, to believe that 10 of our men well appointed are not able to give law to their 100 aided with all the advantages of animoſity and revenge, to which by nature I muſt confeſſe them prone, but their cowardiſe is ſo great, that they never act any thing but upon the ſcore of anticipation or ſecurity; a nights march and the dawne of the day are the onely opportunities which they take to revenge former hoſtilities upon their ſleeping enemies: he which conſiders

the

the desperate security the English then lived in, the fatall entercourse to the admission of them into their houses, into the heart of all their plantations without any jealousie (I had almost said discretion) will rather admire they were not totally massacred, then but in part attempted; and yet to shew the invincible baseness and Cowardise of those Savages, then when in the heat of their revenge and height of bloud, fury, and successe (when all Cowards but themselves are irrisistably desperate and pushing on their fortune) one man that was master but of a hart and pitch-forke, hath been known stave off and affright ten of those assassinates; nor were any that had the generosity to oppose, or the discretion to keepe good their houses massacred by them.

The baseness of these incomparable Poltrons considered, what cause should there be to feare them? yet to shew how those which through ignorance or doubt of their attempts may be sufficiently secured, these remedies have been proposed and are resolved upon to remove all future attempts of that nature.

Our first seating will be upon as pleasant Islands as eye may delight, into which all accesse must be by water. The Indian (first bought out of those Seas, which a most inconsiderable trifle will purchase and prohibited fishing there, with a severe punishment to all those who shall against such prohibition appeare with their Canoas upon the waters) cannot assemble upon the main to our prejudice, or gather together their Canoas without our notice; besides a small thing will buy spyes amongst themselves to discover all such practises; a knife or a hatchet will make them betray their neighbours, or which is more, their kindred.

When our numbers (by the blessing of God) shall enable us to grow upon the maine, the same price which bought them out of Islands will purchase them out of the continent (I meane such a part of it as will sufficiently serve 100000. Inhabitants) in the bounds whereof no Indian shall appeare without an uncountrefaitable mark of permission, and spies used as before; we may make use of their intelligence concealing the Authors, which will make those so discovered attribute to miracle what we receive by information, and peradventure enter into a superstitious beliefe of our præscience of their machinations, which will deter their attempting the like for the future.

Another objection which is usually made, whether this part of Virginia may not be too hot as the North of that Continent is too cold, considering the constitution of the English not proper to endure it, the extreams of either being alike distastfull.

Though it be certaine that all over those Countries drawing near the Center of the Sun a constant Brise arises and continues from 9. to 3. with a great mitigation during the violence and height of the Sun, and that during those intervalls, servants are so indulged as not to labour without doors, yet it is certain that the violentest of heats in that Southern is not hotter then some dayes which we feele in England.

And though ancient Philosophy may stumble at the doctrine (able to make reason herselfe almost blear-eyed) yet those no lesse signall experiencers of the modern will tell us, that the causes of moderation and habitability of those regions proceed from that which imposed upon our Patriarchs of learning, who upon favourable conjecture that the (supposed dangerous) neighborhood of the Sun, and the rapid transit of the celestiall bodies, with the perpendicularnesse of direct rayes could not but perpetually exile all cold and moisture as non-naturall and forreine to their immediat residence. Neither had reason any allegations to the contrary, till experience opened its eye-lights by this demonstration, for moisture is never more violent in those (which we call torrid) regions then when the Sun is in his neareſt visits; from hence arise winds and impetuous showers dayly, from hence the Sun having (in a degree of debauch) caroused too much in his spacious and sweaty journey, over the Ocean does there discharge it; whereas in his absence he receives no more of those moist vapours then he can temperately and healthfully concoct.

Besides, these frequent showers do not only coole and refresh the otherwise parching earth, but adde as much to its fatnesse and improvement, as the innundations of Nilus, Niger, and Zaire in Africa, and makes the earth invulnerable against the Sun's hostility & arrowy beams: and as in an Alembick a fire of heat and violence enlargeth the quantity of vapours, which stifled as it were and issulesse are converted into waters, but the fire being but meanly eager, drinks up those vapours in their exhaustion; so the Sun in the greatnesse in the Giantism of his strength, onely exhales (not digests)

gests) that quantity of vapours which he is inforced to disgorge in showers, which draughts of his are in his lesser heat in a more temperate quantity imbibed and concocted.

Nor deserves it a lesse part of consideration, that in that part of the world in which there are so many unbounded Gulphs, such immense Rivers and inlets, the vapours and exhalations cannot but adde coolnesse and moisture to the neighbouring Elements of earth and aire: and which is an indisputable reason the almost equall length of dayes and nights dividing perpetually the time into equall portions causeth a lesse heat then presented it selfe to the consideration-slumber of the ancients, which is confirmed by the Philosophick Poet in these Verses.

Quodq́ die solis violento in cæsum æstu,
Humida nox reficit paribusq́ refrigerat horis.

Nights what e're dayes burn with o're heated powers,
Coole and refresh by their length-equal'd houres.

Joyne to this the plentifull discent of Dewes greater then unexperienced imagination can comprehend them, and in dispensation of moisture equall to petty showers behealth the dayes with coolenesse and freshnesse, which added to the neighbourhood of such an unfathomed depth, such an unembraceable greatnesse with their spacious fluxes resolve the heated aire into a healthfull moisture: But nearer the Poles the continuance of the Sunne, the almost no nights, and long lived dayes make those parts more insufferably hot, then nearer an equall division of night and light, and this cause makes the Summer hotter in Russia then in England.

I had not dwelt so long upon this discourse, but onely to show that if the Centre and head-quarters of the Sunne perpetually affigned betwixt the Tropiques be capable of cooleneſse and habitability: What shall Virginia a Region as fortunately and temperately seated as the nobleſt Countries under Heaven expect of moderate heates, and a by-these-infertiled surface?

To those other Questions how people shall transport themselves if of fortunes? how the lesse able be transported? what conditions they are to expect? I shall not doubt but publick bils will make manifest to them, and that speedily. For the other what meanes to live there? what way of improvement upon meanes? the book is referred unto for directions: But if that appeare unsatisfactory

(that

(that and all things humane being subject to failings) I owe too much to my owne and that Countrey, not to give them further satisfaction to the best of my knowledge: And if they please to collect the Stationers name and refidence from the Frontispiece of the Booke, I am confident he out of his humanity and good affection, will either signifie to them where I may prefer my addresses to their information, or where I shall be to attend them, and withall contribute my best knowledge in what may be usefull to them, or bring them to such of higher quality as may give them plenary satisfaction.

It is my opinion (but the more ripe judgement of others) that this Countrey well husbanded, and peopled, will in regard of its variety of Staples, be such a constant entercourse of Traffick to our Merchant Adventurers, as to free them totally from all those dangers which they now groane under, either by open hostility of knowne, or under hand dealing of private Enemies Trade will be so secured among our selves of all those Staples which France and Spaine sell us with a hand full of exaction and causelesse expostulations, that nothing but the casualties of the Sea will contribute to cast down countenances upon the Exchange or making our Merchants Bankrupt.

And that this may want no poore contribution of mine: The Reader will be pleased to take notice that a booke fully discovering the whole mystery of the Silke-worme, the whole art of the Vine, and the conversion of the Sawmill to infinite other as profitable uses, will shortly be published, in which the Authour as in this will reckon it amongst his happinesses, if he can at all be availeable to private instruction, or the publick benefit.

FINIS.

29.

VIRGINIA'S

Discovery of SILKE-VVORMES, with their benefit.

AND

The Implanting of MULBERRY TREES.

Also

The dressing and keeping of Vines, for the rich Trade of making Wines there.

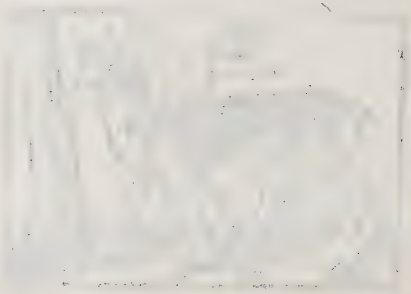
Together with

The making of the Saw-mill, very usefull in *Virginia*, for cutting of Timber and Clapbord, to build withall, and its conversion to other as profitable Uses.



LONDON,

Printed by *T. H.* for *John Stephenson*, at the Signe of the Sun, below Ludgate. 1650.



To all the VIRGINIA Merchants, Adventurers, and Planters.

Gentlemen:

THE unhappineſſe to be amongſt the loweſt of men, for parts and fortune, cannot hinder mee from the ſatisfaction which I receive in my ſelfe, that none is poſſeſſed with a more eager paſſion of contributing towards the advancing Virginia to that degree of felicity which the bounty of nature, richneſſe of ſoyle, and temperature of Climate deſigned her to: and were my power but of as ſtrong a wing as my inclinations and deſires, that above-example Countrey ſhould be placed in ſuch a Zenith of ſtability, wealth, and glory, that it ſhould behold all the other Nationall happineſſes of the world in a Sphere beneath her; and her Merchants Adventurers and Planters, like ſo many Load-ſtarres to conduct Mankinde into an innocent Ocean of unfathom'd wealth of unrocky proſperity.

No Countrey under the Sunne is leſſe ingratefull then Virginia, if ſhe be but juſtly courted, but to Complement a Virgin for her affection by breathing ſmoake in her noſtrils,

to expresse our Civilities by Vapour; and for all that vast Dowry of spaciousnesse, wealth, bounty of aire, and plenty of provisions, to proffer her a joynture of Tobacco, is a Complement indistinguishable from incivill rudenesse.

What Riches may not the Silke-worme, Vine, Olive, *and* Almond *afford us? By these noble undertakings wee contract* China *two thousand Leagues nearer to us, and are not troubled though* Spaine *and* Italy *were removed five thousand more distant from us: and if wee could not satisfie the implacable curiosity of our Senses without the Easterne Spices, it is without dispute, that what every Orient hath of Aromatick, would grow without any deterioration in this incomparable Countrey.*

Yet if, by some occult propriety of nature, these Spices, and Gummes should not prosper with that successe in the Countrey to which they are onely adoptive, as where they are naturall: The South Sea flowing upon the skirts of this gloriously apparrelled Virgin, would not onely furnish us, but (through our meanes) all the Westerne World with whatever the Philippines *and* China *have in their brow, or bosome: which that it may be discovered, a Publique incouragement from the Merchants here, and the Colony there, would awaken all spirits which have any scintillation of Honour, or industry, to undertake the imployment, effect it undertaken, and by the effect raise an unperishable structure for their owne glory, perpetuated by the publique felicity.*

The greatest defect that Colony can with consent complaine of, is their want of shipping, and the greatest with which others finde themselves perplexed, is the want of industry to build them. If Virginia *had not as stately Timber as any other Region whatsoever: if it had not a Soyle naturally inviting them to improve her in Iron for Gunnes, Anchors,*

and

and other conveniences; in Hempe for Cordage, Flax for Canvaſe, and Pine trees for Maſt: this defect might be allowed for reall: but where all theſe concenter, it is as unreaſonable to complaine, as for a man ſeated at a Table covered with excellent proviſion, to accuſe his fortune for ſuffering him to periſh with hunger, becauſe his meat is not digeſted in his ſtomack, without putting his hands and teeth to labour.

I could cordially wiſh that there were ſuch quantity of cleared ground in Virginia, *that every one at his firſt arrivall might fix upon the Plough, that the ſo much diſcourſed of Staples of Wheat and Rye, might be brought to an abſolute ripeneſſe of perfection: But to imagine ſo many millions of trees of a facile removall, or that old Planters knowing the beneſit thence ariſing, ſhould part with them to others, and ſeeke new uncleared grounds for themſelves, were meerely to dreame of impoſſibilities.*

But the Vine, Almond, *and* Olive, *may be ſet where the tree is onely barked about to hinder it from leaving; beſides if there were a neceſſity to have abſolutely cleared grounds, (which reaſon it ſelfe cannot imagine,) yet foure Acres of ground ſo cleared for the* Vine, *will returne (by much) more profit, and leſſe trouble, then twenty Acres of Wheat, at ſuch rates as they are prized in the common eſtimation.*

But ſince this profit reverts to the Purſe without the toyle of eradicating trees, as great emolument, as if the ground were altogether treeleſſe, to what purpoſe ſhould we court ſweat and affliction? or increaſe our miſeries without any addition to our happineſſe?

Gentlemen, the happineſſe of this Nation depends upon your conſtancy and proſperity, if you ſeriouſly erect theſe ſtaples, wee ſhall be free from the imperious uſurpations of forraigne Prin-

ces

ces upon your estates, and shipping, from the rapine of Pirates upon your lives or liberties. The decayed number of our shipping may be resupplyed by encouragement of Carpenters of all Nations, to make use of those materialls which the inimitable liberality of this Countrey gratefully presents you with: all Staples (diffusively spread in other Regions) will meet here united, and we shall arrive to that degree of happinesse, to make our intrade by much exceed our exportations: for the compleating of which, if such an inconsiderable, and lost thing as my selfe, could be any way instrumentall, I should as cheerfully hazard my life in the employment, as I now subscribe my selfe,

Your ready, faithfull, and

most humble servant,

ED. WILLIAMS.

The

The Discovery of Silke-wormes ; with their benefit, and implanting of Mulberry trees.

THE Mulberry tree, yielding the sole food of this exellent Worme, must first bee provided for, whereof there are Myriads dispersed in the wide Continent of *Virginia*, which may bee collected by transplanting, grafting, or nursering.

For transplantation there are infinite advantages both of well growne and springing Mulberry trees, which may with much facility be removed, and with great felicity thrive upon such a removall, of which experience can afford frequent examples.

The Grafts must bee chosen from excellent good Plants which expresse a large fertility, and bee something large of themselves, by which election there will bee a greater certainety of the goodnesse, and a more speedy expectation of growth in those Grafts, which thrive better when grafted one upon another, then upon the Chesnut, Apple-tree, Elme, White Popler, or any other, which if they are not mortally opposite, are however præternaturall to the Silke-worme.

The Nurseries have so much of tediousnesse and difficulty, that I shall hardly advise to put it in practice; yet to those who have a stronger credulity then my reason can perswade mee to, I shall offer the sole experiment of effecting it, if that may bee called aptly an expedient, which hath so little of expedition in it.

Let the Reader addresse himself to make a Nursery, observe, and gather such quantity as will suit with his necessity, of the ripest Fruit

growing upon thoſe Trees which beare the faireſt and roundeſt leaves: Theſe thus gathered, you muſt waſh in two or three waters, preſſing them with your hands, by which meanes you ſhall finde the expreſſed ſeede in the bottome of the water: I accede more to the ſowing of the Mulberries whole without ſuch expreſſion, however, either the Mulberry entire, or the ſeede may bee ſowed after the manner following.

A bed of fat earth being digged, husbanded, and the Mould brought into a ſmall Powder, muſt have ſtrait Rowes or Lines in Furrowes, all halfe a foot equally diſtant every Furrow two inches deepe, and foure broad, this diſtance may bee ſomething larger that an intervall may bee made to the Weeder in the weeding of ſuch things as may hinder the Mulberries growth by participating in its aliment.

A great care muſt bee had to water it often for the firſt yeare, if the weather be dry, the ſucceeding yeare you may pul up and tranſplant your Mulberry trees into another ground more at large, *viz.* at two or three foot diſtance, which muſt bee not retranſplanted till the growth ariſe to ſome ſix inches in the circumference, at which bigneſſe you may remove them to the ground deſigned for their conſtant fixation, leaving betwixt each Tree a diſtance of ſixteene or twenty foot, that the too much vicinity may not make the extending branches mutually inconvenience either by excluſion of a full Sunne, or wound themſelves by intertangence of one another: In ſuch warme Countries as that of *Virginia*, the Root muſt bee preſerved coole and moyſt, by a deeper implantation then is uſuall in colder Regions.

For the election of your Plants or Sciens you may take notice of two Families, or Races, of Mulberry trees, the black, and the white diſcordant in Wood, Leafe, and Fruit; onely having this in common to ſpring later then other trees, as never emitting their leaves till all apprehenſion of cold is vaniſhed, the black Mulberry is not ſubdivided into any other ſpecies having the wood ſolid and ſtrong, the leafe large, and rude in the handling, the fruit black, great, and acceptable to the Palate: But there are three apparently different ſpecies in the white, diſtinguiſhed onely by the colour of the fruit, namely, white, black, and red: Yet is this fruit by much

much leſſe gratefull to the palate then that of the black Mulberry. No other diſtinction beſides, the colour of the fruit diſcernes them one from the other, the Leaves of all three being of the ſame meane greatneſſe of the ſame ſmooth feeling, the wood of the ſame internall yellowneſſe, almoſt as firme as that of the black Mulberry.

But the ſilke taking his quality from the leafe make us lay aſide the black Mulberry tree, ſince the bottomes from thence are too groſſe and heavy, whereas the white Mulberry makes ſilke fine and light, to temper which many feed the Wormes with two ſorts of meats by diſtinction of times, *viz.* at the beginning with white leaves, that the ſilke may bee fine, in the cloſing, with black to fortifie it, and make it weigh: Yet this though it have an appearance of reaſon at the firſt inſpection, rarely anſwers the expectation, the very alteration of the meate as from that which is more delicate, to that which is more groſſe, being diſagreable to the nature of the Worme, who muſt ſhew that diminution in the quality of his ſilkes which hee feeles in the impairing of his nutriment. Others make a contrary application of leaves by a more (imaginative ſolid foundation) which is to begin their dieting with black, and conclude with white; which cannot ſucceed better, for the black having diſpoſed the matter of the ſilke, the white leaves after adminiſtred have no power to alter that ſeminall diſpoſition.

Wee ſhall therefore fixe upon it as a Principle of Nature, not to vary the nouriſhment of this induſtrious Creature. If wee begin with the black Mulberry, the continuance of it will bee neceſſary. If the Ground you poſſeſſe bee already planted with black Mulberries, it is ſo much loſſe of time and expences to replant white: But if wee are to commence a thing *de Novo*, every mans reaſon leading him to chuſe the moſt profitable, and common experience telling us that the white antecede the black ones ſo incredibly in the poynt of Maturation, that ſix years of growth advance not ſo much the latter as two the firſt; it were an act declaring Bethlem for Dictator, not to prefer the moſt ſpeedy and profitable before the tedious and improper commodity. Beſides which Emolument the Branches which by that ſpeedy ſhoot they bring

forth will bee usefull for propagation of that tree to infinite Numbers.

There is yet experimentall election amongst the white Mulberries. Some affirming that the Leaves of those trees which emit the white fruit are fitteſt to bee assigned for this nouriſhment, which they fortifie by this reason; That Pullen and Swine doe most delight in the white, and never eate the red and black but by constraint, a conjecture not altogether irrefragable; for why may it not bee controverted that Pullen and Swine being a greedy Generation, may rather ballance that which is most grosse and fulsome, as beſt adapted for their Palate, then that which is nice, and subtle, and beſt according to the delicate tenderneſſe of this Creature? Others who have their owne experience to fortifie their assertion, commend the white Mulberry bearing the black fruit, the colour demonstrating a better concoction in the fruit, and consequently in the leafe then the others.

But (which wee must bee extreamely curious in) wee must expell from our yard all Muberry trees bearing leaves too much indented, which, besides that it is an apparent signe of small subsistence and uncompleated nature, is more defective in quantity and quality of nouriſhment, then that which is leſſe interruptedly circular: Yet this may easily bee remedied, if you *inoculate* such trees in the Bud, or *Escucheon*, having neede of such freedome; the profit thence arising being very considerable for this kinde of nouriſhment: For by this course that inconsiderable quantity of worthleſs and famelick leaves receives a happy melioration into an abundant plenty of substantiall and nutritive nature. Nor is this transmutation improper, for any other Orchard Plants which will succeede to your most advantagious expectation, and all indomeſtick and wild trees may by this bee made capable of a most happy cultivation. This infranchizing may bee practiſed to the answer of your desires in Mulberries of all Ages: In the older, on their new shoots of the antecedent yeare then lopped; in the yonger upon the smalleſt trees of the Nurſery. But to graft theſe trees in the firſt season, that their growth will permit it, is most opportune and profitable; for by this meanes your Groves of Mulberry will bee intirely delivered from all apprehenſion of jejune ſterility, or insubſtantiall

ſtantiall deficiency: Nor can ever you feare a want of ſupply, if you conſtantly maintaine a Nurſery of ſuch Grafts, not from the ſeede, but from the ſhoots and branches of your beſt trees thus propagated to an unperiſhable infinity by couching them in the ground, and the trees encreaſing by their reimplanting are conſtantly furniſhed with Leaves of an excellent ſweetneſſe and greatneſſe, exquiſitely abundant in nouriſhment, and conſequently exempt from all the inconveniencies which walke hand in hand with an ingratefull wildneſſe. Having deſcribed what Trees, Grafts, and Nurſeries are beſt conducent to our myſtery; let us next dilate of their moſt proper ſoyle, and beſt order in planting.

The beſt ſoyle and order for planting the Mulberry.

FOr the ſoyle it muſt bee choſen in particular much like that of the Vines, inclining rather to dry then moyſt, light then heavy, ſandy then clayie; for thoſe which opinionate themſelves that a fat ground is inconvenient to Mulberries, as ſupplying leaves of too groſſe and unſubtile aliment; The Objection is pritty, but under pardon ſcarcely ſolid, neither am I capable of any reaſon to the contrary, why a rich ſoyle ſhould not emit the growing Trees with a greater maturation and bigneſſe, then a leane Plantation, where the tender Plants are even ſtarved with the ſpareneſſe of diſtributive moyſture and aliment: Yet to prevent the too groſſe ſubſtance of the leafe after the tree by the advantage of a rich nouriſhment, hath arrived to a competent greatneſſe; the order which wee ſhall preſcribe in their planting will admit the Plough amongſt them, where cultivation will eaſily take off the ſoyle from all exuberancy of fullſome rankneſſe. The ſoyle which is full of Springs, Lakes, Rivers, or (which is worſt of all) Marſhes, is particularly to be avoyded.

The manner of implanting them would require a diſtance of foure fathomes or more, which in *Virginia* where wee labour not under a penury of ground, may bee ſomething more ſpaciouſly enlarged; the Reaſons why this extent of diſtance are: Firſt, the intermixture of ſpreading Branches, where by their contingency they violate and mutually wound themſelves will bee avoyded.

Next, the Sunne hath a more unimpeached immission and distribution of his Beames, with which this tree is most particularly delighted. Lastly, this largenesse of intervalls permits a free passage for the Plough, to take off all luxuriancy of rankenesse, which too much inspissates the leafes, which must feede this admirable Creature.

But of such Graines as may with least impairement bee sowen under the Mulberry trees, Oats and Pease are the most proper, which during the collection of the leaves may with very small detriment bee trodden upon (the season commonly falling in *April* and *May*, when their blades are backward) nay the very compressure of the Earth makes them afterwards arise more strongly.

I approve much more of interplanting the Vine; but (which I conceive the most convenient for *Virginia* is) the setting of the Indian Potato hath the most inestimable benefit; the Potato having such a happy multiplicarion of and in it selfe, that whilst there is but a string of the Root left behinde in the earth, the species will bee renewed. Besides the excellency of the food, whether for man, or (where such a vast abundance may soone introduce a satiety) Cattle will bring alone with it an inestimable advantage; whereas Corne may too strongly impoverish a Ground, and the Vine it selfe when it comes to its ripest excellency, will want the compleat comfort of the Sunne beames to give fruit a well concocted maturity, the Mulberry like an Ambitious Grandee, engrossing all that favour to himselfe by his prevalency of height and greatnesse.

Nor should wee bee too curious to plant the trees one over against the other exactly opposite; but (still observing for beauties sake to set them in a right line) rather one against the Intervall of the other, that so the Sunne may have no interposition from any Angle, to warme, comfort, and enrich this tree, which aides the production of so many incomprehensible Miracles.

The order for collection of the Leaves.

THe order to bee observed for collecting the leaves should bee precisely insisted upon, that the trees may bee of longer and more

flouriſhing duration, and the food of a more curious and unſoyled nouriſhment: It is a truth not to bee denyed, that the diſleaving of trees is extreamely prejudiciall, and in ſome irrecoverably deadly; the reaſon is their extraordinary ſcorching, by being left without any ſhade of protection: But the Mulberry being (as it were) deſtined to this worke which it naturally ſupporteth, more inprejudicially endures this temper of diſleaving then any other trees whatſoever. But for the obviation of this inconvenience, it will bee abſolutely neceſſary for our Maſter of the ſilkeworme, to have ſuch a proportionable number of trees, that the halfe may alternately repoſe unpluckt every ſecond yeare. This diligently put into practice will make your trees continue verdant and vigorous for many Generations.

To gather them with both hands leafe after leafe, is confeſſedly the moſt proper, but yet withall the moſt expencefull; for the multitude of hands which ſuch a circumſtantiall labour would exact.

The other way of gathering them with ſtripping them from the branches, is without doubt extreamely nocent to the tree, and worm: to the tree by unbarking, wounding, and periſhing its branches. Nor is it leſſe detrimentall to the Worme ſeeing this diſorderly collection corrupts and ſullies the leaves, which this delicate nice Creature perceiving, either rejects them, or ſickens upon their reception by bruiſing the leaves, and expreſſing that which is the life of its ſubſtance, the juice, and this commonly with unwaſht hands, which leave the ill odour unremoveable upon them.

The removall of theſe inconveniences is eaſily effected by following the courſe they practice in ſome parts of Spaine, which is by clipping the leaves from the branches with a ſharpe inſtrument, like a Taylors ſheares; by this way you diſleave many ſtalkes at once, which falling into a cleane ſheete ſpread under that tree for the purpoſe, ſeperating afterwards the leaves alſo, ſuch as are ſound from unſound, ſuch as peradventure have much of the ſtalke, from thoſe which are nothing but leafe, (the ſtalke being hurtfull to this tender Creature) and adminiſtred to them the Sunny ſide of the leafe upward is the moſt commendable practiſe of gathering and feeding that hath hitherto been delivered.

The

The leaves of the old Mulberry are to bee much prefer'd before those which are not come to an absolute perfection; the age of perfection in the Mulberry, we reckon to be accomplished in seven or eight yeares, as to soundnesse of nourishment; not that they grow not after, but by that time it is growne powerfull to concoct such succulency as might before over master it.

The trees disleaved must by a diligent hand be pruned immediatly after the last collection; what ever is broken, wounded, or made unprofitable must bee carefully cut off. The extreames of all the branches must be top'd a little with a sharpe pruning knife, which is an invitation to nature to send forth the next yeare more vigorously. But whether it be in gathering the leaves, or pruning the trees, it must bee our principall care that they be intirely beared, the omission of which, by not taking all the leaves off, turnes back the liberallity of the repeating Spring. This observation hath been grounded upon practise, made so successefull by experience, that it hath been found, that trees after such culture and disleaving, have within a month attired themselves with such a new border of leaves, that the former imbalding them hath been imperceptible.

Which induces me to believe a former assertion, that it is possible to have a second silke harvest by this meanes, and why not equall with the first, I know not, since the seed is more youthfull and vigorous then that of the yeare preceding growne feeble by its continuance.

The raines if they fall about the time this noble creature drawes unto her perfection and period, is by much more strangely prejudiciall, then when they are in the greatest of their feeding, the wet leaves occasioning them many desperate diseases: the usuall way of prevention is to have a provision of leaves before hand, when there is any jealousie of rainy weather; but this provision must be laid in a cleane dry place which is fresh aired, and that we may remove all dangers of contracting too much heat, to be turned often, which course, although the Raine should not oppresse us, yet is it of great conveniency, not so much out of apprehension to be necessitated as for the quality of the food, it being much better after fourteen or fifteen houres resting in a place cleane and drie, then

when

when fresh from the tree. But if you are surprized by an unexpected season of wet, take those Mulberries which you intend to lop the next yeare, (and the Mulberry would be lop'd every ten or twelve yeare, which revives and strengthens the tree with a new youth) and cut their branches which hung up in a drie corner, either of your house or barne, or any other coverture in airy places, will soone have their leaves drie, better condition'd, and of more efficacy then any leaves set to a fire, which is too suddaine, or to winnowing by a winde artificiall and unnaturall.

The Mulberries chiefe profit consisting in the leafe, we must be carefull to lose nothing of this revenue; which considered, wee should delay the disheading or lopping of them till the Wormes have done feeding, which would be about the latter end of *May*, or the beginning of *June*, and although by the disbranching of them in such a season, we cannot expect such large returning shoots as those which were cut in *February* or *March*, the distance of time being materiall in their growth, yet the profit of the leaves being double, very well answer such inequality. The Mulberry being of so franke and plyable a disposition, that notwithstanding its amputation in unseasonable Moone and weather, no injuries shall hinder him from Regermination.

Yet are not these advantages (no necessity obstructing them) to be omitted by any which are not enemies to their owne profit. The Mulberries in the increase of the Moone, pouled, or lopt, bring forth their young shoots long without spreading Branches; in the Wane short, with many little Branches crossing the principall. To reconcile this (the election of the time being in our power) the Mulberries seated in leane grounds, are most properly disheaded in the new Moone: those which are planted in rich ground, in the last quarter; so will those in the leane soyle emit shoots as long as the barrennesse of the place will afford them: and those of the latter, through the benefit of their seat, conveniently regaine that which they would not easily have done, cut in the increase; For those aspiring branches, were they not restrained by the counter shoots who participate with them in nourishment would by reason of their unweldy length, be forced to bend downewards to the deforming of the tree from the shape of a Mulberry into that of a Palme-

 tree,

tree, which is not to bee feared in the reſt, by reaſon of the leaneneſſe of the ground, forbidding all abundance of ſhooting: Wee have provided for the feeding of this little and great Artificer, let us now expreſſe an equall care in his lodging.

The lodging of the Silke Wormes.

THIS a vanity to expect emolument from this myſterious Creature, if wee ſort him not with a lodging proper and agreeable to his nature, who can with no leſſe diſprofit bee ill accommodated in his habitation, then in his nouriſhment; who to ſhow a particular affinity with the nobleſt of Creatures, Man, makes his affection of habitation equall to his. Spaciouſneſſe, pleaſure, healthfullneſſe, diſtance from offenſive vapours, damps and humidities, warmth in the extreames of colds, cooleneſſe in the extreames of wirmth. What ever wee naturally deſire and abhorre, does this Creature by the proſperity or infelicity of his labours ſhow a moſt experimentall reſentment of.

His ſtation therefore muſt bee in the meane twixt the top and bottome of a foundation, the firſt being too much obnoxious to heats or windes, the ſecond to colds and Damps. The Platforme therefore of your building his ſtation muſt be ſo contrived, as to have his Baſis three or foure foot above the ground, nor aſcending within an equall diſtance of the Tiles. A Fabrick (ſaith *De Serres*) of ſeven fathome in length, three in breadth, and two in height, will entertaine with eaſe the Wormes enlivened from ten ounces of ſeed: this proportion may be raiſed according to your ſeed. In VIRGINIA theſe may be of very ſudden erection; Nature hath furniſhed that excellent Countrey with materials, to invite all who have the deſire to attempt it.

That the aire and winde (if coole and dry) may have free paſſage to refreſh theſe laborious ſpinners, who near upon the perfection of their worke are upon the point of ſtifling, (the ſeaſon, and the abundance of the ſilke wherewith they are filled, both cooperating thereunto) Wee muſt have windowes opening to all Angles to receive unſuſpected infrigidations in extreamities of heat, and warming tranſpirations in immoderate colds; Yet with this

Proviſo,

Proviſo, that theſe windowes bee fit not onely to receive any favourable aire, but to expell all noxious vapours; and becauſe this Creature loveth any thing that is white and luminous, it will ſort excellently well with his diſpoſition and ſafety, to parget or plaſter the inſide of the houſe very well and ſmooth, both to ſatisfie the eye and preſerve him from the danger of Rats, which cannot clime up ſuch a wall, though a principall care ought to bee uſed that the ſeverall ſtations on which they are lodged, bee remote from all fixures to walls, which might give Rats and Mice advantage.

To build the Scaffolds containing theſe Wormes: Many Pillers of Carpenters worke directly squared, ſhall bee perpendicularly erected, from the ground to the ſeeling, to ſupport the Tables which croſſing the pillars upon little joynts ſixteene inches diſtant one from the other (except that from the ground which muſt bee 36 inches.) Upon theſe Tables doe wee lay our Wormes, but their boards muſt not bee equall in breadth, every table as it exceeds in height, being to bee narrower then the next below by foure inches, and the higheſt approaching the ſeeling to bee narroweſt of all. This Pyramidicall forme is of moſt beauty and ſafety to the Wormes; when wandring upon the Edges from one end of the Scaffold to another, ſeeking a fit place to vomit their ſilke, they fall in ſuch a precipice from the higher ſcaffold to the ground, that they break themſelves in pieces: But by this means falling but from one ſcaffold to another, the ſmallneſſe of the diſtance contributes to their preſervation. The breadth of the moſt loweſt table ſhall bee limited even to this proportion, that eaſily of one ſide a man with his hand may reach the middle to attend the Wormes; as for the aſcending ſcaffolds their continuall diminution makes the ſerving of them of greater eaſineſſe.

A Roome of any capacity will admit ſeverall of theſe ſcaffolds (diſtinct from the wall for reaſon before recited of Rats) and alſo that the attender may come on either ſide of the ſcaffold, ſuch ſpace being always to bee left betweene their poſition.

Theſe ſcaffolds muſt bee made of an unſuſpected firmeneſſe, to prevent the falling downe of any part of it, or the whole either by the ladder which the Keeper aſcends, or the weight of the Worms

 themſelves,

themselves, when once growne great and heavy.

To ascend these scaffolds some make boards about them, as it were by Galleries, others have their getting up to them by little staires appropriated to this; others by formes. I approve of none more convenient then a light ladder which fits all, and possesses but one place.

The timber fittest to employ in the tablure of this scaffolding is usually firre or such light wood: In VIRGINIA I apprehend none fitter then Cedar or Cypresse, because of their delicious odours.

Wee have already spoken of such meanes as may refresh the overheated worme; rests now to deliver an experiment to warme the Aire, this Creature being no lesse Enemy to cold in the beginning of his apprentisage, then to heate when hee is ready to goe out of this World Master workeman.

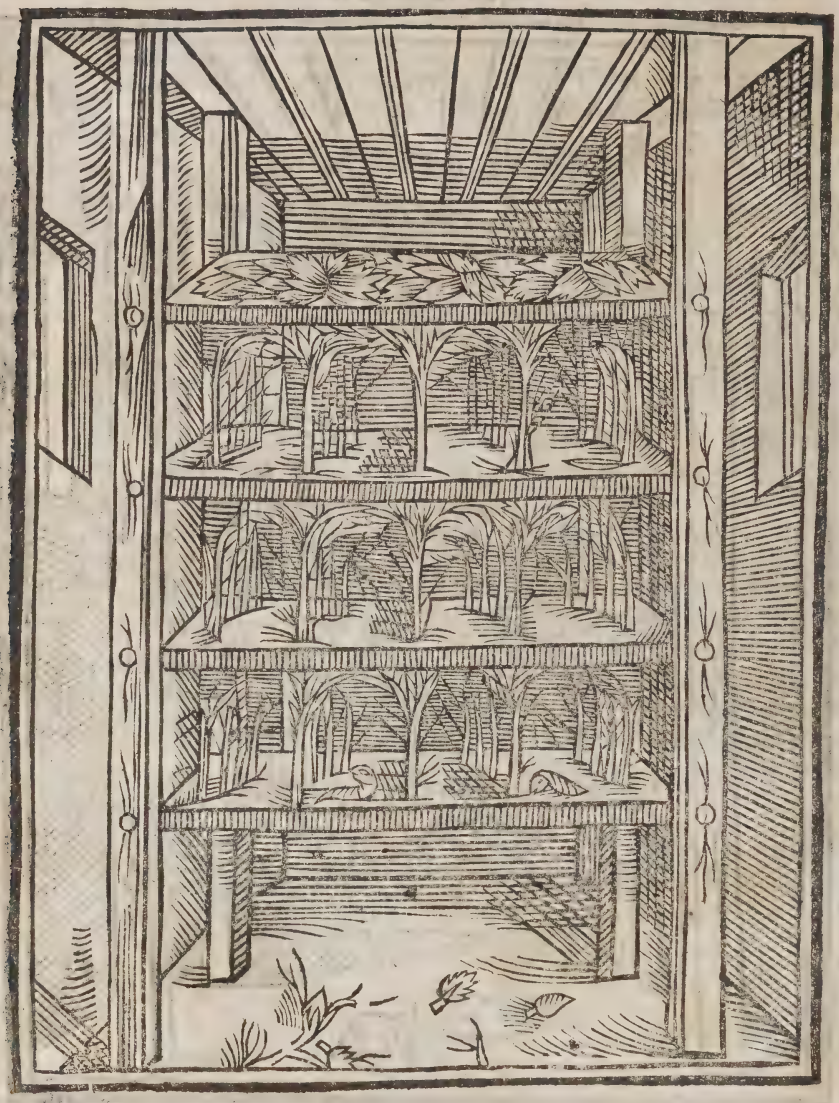
After having built your house for worms, let there be a hole pierced through your wall, where you must make an Oven, the mouth whereof must be on the out side of the house: Then before you make it off, take pots like flower pots, but such as will indure the fire, and lay them with the mouth side of these pots tending inwards towards the house, and the bottome within the Oven, lay these thus sidelong at an equall distance, and worke up the Oven with the pots incorporate thereunto. This done you may make a fire in the Oven, which by the benefit of the pots conveyes all the heate to you without any inconvenience of smoake. To make this heate the more agreeable to the Worms, and to keepe the house in a temperate and insensive warmth, you may put into these pots branches of Rosemary, Time, Roses, Juniper, &c.

The

This Figure sheweth the order for ranking the Tables on the Scaffolds, to lay the Leaves on, for feeding the Wormes.



This Figure sheweth how to place the Rods, betweene the Tables, for the Wormes to climbe up, and spin their silke.



This Figure representeth the Engine, to wind off the silk from the Cods, with Furnaces and Cawlderns necessary thereto.



This Figure pourtraſte the Cods, with the Butterflies come forth of them, to lay their Egges upon black Serge, Chamlet, Tammy, or ſuch like ſtuffe, as in this Treatiſe is ſhewed.



The election and use of the seed of the Silke-Worme.

THere is a great deale of Reason, that we should be curious in the election of our seed; and tis not more Poetick then Philosophick, that of HORACE:

Est in juvenis est in equis patrum,
Virtus nec imbellem feroces
Progenerant aquilam columbæ.

What can we expect of generosity in that which has a disposition to degenerate before produced: of all the seeds proper for the vivifying this animall, there is none more excellent, as yet arrived to our knowledge, then that of Spaine: this *De Serres* affirmeth, though he seeme to be in a kinde of hæsitation, whether that of *Calabria* march not in a higher degree of reputation, as yielding more abundance, and of equall hardnesse with the Cod of Spaine; yet this is certaine in nature and reason, that seed transported into other colder Regions, can no way lay claime to a parity of thriving with that continued in its owne Climate; and I doubt not but if the South of VIRGINIA, where the Silke-worme is aboriginally native, were duely inquired after, the Seed of that would have a particular excellency, to which all the Europæan Nations must give the glory, the right hand of preheminence.

But leaving this to the scrutiny which shall be made by time, and experience, we must grant the prime opinion to the Spanish, which however it thrive in France for foure yeares, yet afterwards it degenerates extreamely, so that it must every foure yeares be renew'd, for within that circle it suffers a manifest declension in goodnesse. Comming from Spaine it is of a dark tawny colour, after certaine generations, gray.

To prove whether the seed be dead or not, you must experiment it upon your naile, that which breaks in cracking, casting forth humor and moisture, you may assuredly esteem for good, the other is to be rejected. The smallnesse of the Spanish seed increases the number of Wormes, for which it deserves a particular præparation.

No seed of above a yeare old is any further profitable, till you

put them to Hatch, you may preſerve them in Boxes thruſt amongſt woollen clouthes in a Trunke or Cheſt, and let the Chamber where ſuch Trunkes or Cheſts are, be now and then aired with a fire, to the intent they being rather warme then cold, may be prædiſpoſed for a haſty production when the ſeaſon of the yeare ſhall invite you to put it into practiſe.

To imbibe or ſteep the ſeed of Silke-wormes in the moſt generous Wine you can procure, is an experiment that hath alwayes anſwered with a happy ſucceſſe; for this not onely diſcriminates betwixt the good and bad, (the good alwaies ſubſiding, and the other floating) but addes legitimation and ſtrength to the approved ones, making them come forth free and fortified, and cauſeth them to hatch almoſt all at one time. After the good are taken out, they muſt be ſet to drie in the Sunne, or before the fire, layd upon very clean paper, covered with white linnen, or ſmooth paper, leſt the heat might bring it prejudice.

The vivification of the Seed.

THE Spring being come, and the Mulberries budding, it will be ſeaſonable to put them to hatching, which (all other wayes omitted, as the keeping them in a Boxe, in ones pocket, between a womans Breaſts, &c.) ſorts beſt with Reaſon and convenience, performed thus, *viz.* That the ſeed removed from its firſt veſſell, ſhall be committed into a Box lined with Cotton, over which you muſt put a white paper, which muſt ſeperate the ſeed from the Cotton, then cover the ſeeds (being not above halfe an inch thick) with a little bed of Tow, over which Tow you are to lay a paper pierced very thick with ſmall holes, much about the bigneſſe of the tag of a point; over this paper you ſhall lay ſome Mulberry leaves. And this is the preparative to hatch them.

To bring them forth, lay your Boxe ſo prepared between two Pillowes, which moderately warmed with a Pan every two houres, and after the firſt three and foure dayes viſiting the Box at every ſuch warming, to the end to ſeperate ſuch as you ſhall ſee hatched, who will not faile to creep through the Tow and pierced paper to the Mulberry leaves, to which they will cleave: which to remove,

you

you must draw them out of the Boxe by taking hold of the Mulberry leaves with a needle, and removing them and the Wormes adherent into a bigger Boxe or sieve; with paper at the bottomes, distinguish those of a hasty production from those of a more slow, that the worke may arise more equall. These thus brought forth must by gradations be accustomed to indure the coolenesse of the Spring, diminishing dayly something from his accidentall warmnesse: the first foure daies let them in the sieve covered with cleane linnen continue upon the bed, the curtaines closely drawne, then removed into a warme chamber, close from all penetrations, layd upon ranks close together, that they may give and receive mutuall warmth, allowing them a larger proportion of roome, as they increase in body.

But the most assured way to preserve the Wormes untill their second change in warmth and security from Vermine, dust, or other hostilities of nature, is by a great Presse or Cubbord made with many stages, pargetted or pasted for the agreeableneſse of the odour with Oxe dung, made of firre, or mats, and to draw out at will seperately, equally distant foure inches, compassed round about with Linnen tackt to the doores, with paper windowes on the sides and formost doore, to admit or exclude aire after the exigency of the occasion; and heere vacant places being left at first to enlarge them, as they increase in growth may they bee distinguished according to the Dates of their first appearance upon the Mulberry, rejecting all that seed, which is not enlivened before the fifth day, as unprofitable for working by confusion of times, and useleſse by their weakneſse.

Foure times doth this excellent Artist change his skinne, which is the cause of his so many sicknesses. The first sickneſse arriving within eight dayes from the beginning of his life, is knowne by these symptomes; the head growes bigge and white, and hee hides himselfe under the leaves: To administer any food were needleſse; but that they are not all sick at one instant, so that some must bee given to nourish them which have not arrived to, or past over their sickneſse, which you shall know by their change of colour and creeping upon fresh leaves.

The second sickneſse arising within eight dayes, or thereabouts,

from thence is knowne by the same accidentalls, and must have the same applications, onely now they would bee removed into new, cleane, and more spacious places: The third is in all like the two other, though something more dangerous; heere you must carefully prevent the accession of all cold ayres whatsoever: It may happen that some of these Wormes may grow yellow, which is almost incurable in themselves, and deadly contagious to all the rest; these must bee carefully selected from the rest and ejected. Remove, enlarge & cleanse as before. Eight or ten dayes after appears the 4. change or sicknes, & now the recovered Worms being increased to their full growth, must be removed, enlarged, & cleansed, as before.

At appoynted houres morning and evening must this Worme bee fed from their hatching to their first change or sickneſſe; from the second change to the third or fourth, they must bee fed three times the day at the least, taking this for an assured maxime, that after the recovery from their last sikneſſe, The very cloying of them with leaves even to the satiety of their appetite, accelerates them to the perfection of their taske; for these curious Vessells will the sooner discharge themselves of their precious incloſed substance, by how much they are the sooner repleniſhed. Nor is there any prodigall improvidence in this; for it hath beene observed that Wormes have eaten neare as much in eight dayes when more sparingly distributed, as in foure when liberally handed to them; so that by such wary dispensation they save no leaves, and loſe foure dayes in point of time.

But a particular eye of care must bee had to the quality of the leaves you feede with. No goodneſſe of a selected tree being capable to secure it selfe against accidentall diseases arising from the unnaturallneſſe of seasons, wherein by extreames of drought or moisture, mildewes, heat drops, and other distempers, all the leaves oftentimes becomming yellowish, spotted, or speckled, declare the nature of that food highly unwholesome and pernicious: Such as grow out of the Sunne in the interior umbragious parts of thick trees are almost as dangerous: Nor are the leaves of the second Spring which shoot afresh on trees already disleaved of leſſe guilt, through the inequality of their Ages. One banquet of those gives the last repast that your Wormes shall have neede of, a fluxe thence

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arising killing them, and easing you of further trouble, if you account it so to be vigilant over your owne profit.

The most agreeable to all Wormes is to bee fed with leaves of their owne age, and by this the feeble Creature shall meete with tender leaves, then growne strong with leaves, full growne correspondent to both their complexions. The fault of the wet leaves may bee corrected by patience, attending the serener season; but of dry leaves you ought at no time (if you regard your owne profit with a sober providence) to bee unprovided, and the way how to prepare hath beene already delivered in this Treatise.

These precious creatures exact no great expence or laborious care during the first three or foure weekes, being satisfied with little, as most agreeable to the tendernesse and smallnesse of bodies, and are very well entertained with the leaves of the succours or other branches, from whence for the profit of the tree one should necessarily cut them. At the beginning we go to gather leaves with Hankerchiefs, then with little baskets, lastly with sacks & maunds, as growing to a bignesse to require it, and a perfection to discern it.

That the Gatherers of these leaves should handle them with pure and washt hands, wee have already declared absolutely necessary: But the Governour of these chast and magnificent Creatures must bee Master of an exact purity. The smell of Tobacco is deadly to them: Let his observance forbeare it: Let him have a watchfull eye, that none of an offensive smell approach them; all ill breathings upon them whether contracted by fulsome foode or nature make this innocently noble Creature expresse her resentment by her owne death, or sicknesse Let him purifie the rankenesse of his owne breath (when fasting) with good Wine ere he approach them, with the odour whereof the worme is highly cherished. Let the Lodging be swept every day, and preserved so by sprinkling the floure with vinegar, and afterwards strawing it with Lavender, Spike, Rolemary, Time, and such like of well comforting Odours. To these we may sometimes adde a perfume composed of Frankincense, Benioin, Storax, and other quickning aromaticks burned in the lodging.

Let the Tables be often made cleane and shifted, by often, I meane every third or fourth day at the furthest, at which time the litter

litter begins to bee offensive to this curious natured Creature; especiallywith the increase of the heate, let his diligence increase, that no uncleaneſſe (at that time more then ordinary maligne) cut him from the benefit of his labours.

The litter muſt not bee taken away by degrees to the trouble of our curious Creature, but all at once; which may bee effected, if you leave at the end of each Scaffold an empty ſtation to place the adjoyning Wormes on, whoſe left ſtation being made cleane is fitted for the next neighbourhood, and thus may all bee removed and ſhifted by degrees, and a vacant table at the other end of the ſcaffold remaines to begin againe (as afore) within two, three, or foure dayes at the longeſt. And thus without carrying far, the Wormes ſhall bee removed with eaſe and ſecurity, not once laying the finger upon their tender bodies; for giving them freſh leaves at the time of their replacing, the Worme will faſten to the leafe, and the leafe may bee removed with his precious burthen, with no leſſe ſafety then convenience.

It will bee requiſite to diſpoſe the tables in ſuch a faſhion that they may bee ſeperately taken from the ſcaffold like tills out of drawers; for this the eaſieſt and leſſe nocent way of cleanſing, as preventing the falling of any ſtench upon the lower tables, and by which they are more ſuddenly diſcharged of their filth and ordure, meerely by ſtriking them gently on the floore, which done, let them bee ſwept and bruſhed perfectly well; Let the tables on which you put your Wormes after their firſt ſickneſſe bee ſprinkled with Vinegar or Wine, then rubbed over with ſweete Hearbes to delight and encourage them to labour. Some have made tryall, which hath ſucceeded happily of the ſmell of Garlick and Onions to refreſh them; I dare not abſolutely aſſent to this experiment; but it is cleare as Sunne-ſhine, that the Worme not onely rejoyces in agreeable odours, but is ſuccoured thereby in his greateſt maladies: of which we now intend to diſcourſe.

The

The causes of extraordinary maladies in Wormes, and their cure.

THe extreames of colds and heates, the too sparing, or too abundant administration of victualls in their severall ages, and a maligne disposition of the leaves are the principle causes of all extraordinary maladies which afflict this Creature. If the inclemency of Cold hath benummed or diseased this innocent Artist, the stove or oven formerly mentioned will recover it (the stopping of all windowes, and other admissories of aire cooperating:) To the greater complement of the cure, let the lodging bee perfumed with redolent Gummes, with Wine, strong Vinegar, or *Aqua vitæ*: If on the contrary, the torrid violence of heate have wasted the strength of this suddaine and excellent spinner: The fresh aire admitted at the doores and windowes some brave artificiall Fannes or Ventalls to raise this breath, if too little, or at the last the exposing them upon their tables out of their lodgings to enjoy an uncontrouled and liberall communion of the aire, some halfe an houre before Sunne rising are the proper meanes of their recovery. Those which by a wastfull liberality of their keeper in the tenderneſſe of their age have injured themselves with over feeding, must bee cured by a two dayes abstinence, and for some two succeeding dayes dieted with a moderation. Those who famished by the negligence of their keeper are almost languishing to death, must bee restored by giving them meate in slender proportion, but frequently repeated, by such a dyet regaining their forfeited appetite. Those which by having fed on yellow spotted, or too yong leaves have contracted a fluxe, and from thence a jaundice and spotted colour, accompanied with black bruisings, must upon the first inspection bee immediately removed into seperate chambers, that the change of ayre and dyet may labour for their almost desperate cure, and to prevent a contagion, which from thence would universally domineere. But such Wormes which as an accession to this last disease you should behold bathed on the belly by a certain humour flowing in that part of their bodies, are as incurable, good for nothing but to repast your Poultry.

Indeed

Indeed excepting this laſt inexpugnable malady perfumes and change of chambers are generally conducing to overcome all diſeaſes and to reſtore a new health and vigour. But this noble Creature is by nature ſufficiently priviledged from theſe diſeaſes, if the unskilfullneſſe or negligence of the keeper did not violate this priviledge, and by that violation increaſe his owne trouble.

Nor is this care of the keeper to bee onely limited to the day, the night too muſt require a part of his vigilance; Mice and Rats then take advantage, and grieved that any Creature ſhould labour for man without their participation or obſtruction devoure them by Troopes, and the Cat her ſelfe enters into a league with theſe her uſuall prey, to prey upon theſe poore things, whoſe innocency and excellency makes them the more obnoxious to their cruell avarice. To remedy this, the houſe muſt not bee without continuall Lampes, Bells, and other vaine terrours to affright them: The keeper himſelfe alſo, or his Deputy muſt frequently walke round about his little Army. And leſt the Oyle (which occaſions divers indiſpoſitions, if it fall but in a drop upon theſe nice Artiſts) might bee prejudiciall, the Lampes ſhould bee affixed on the wall, and the portable lights with which hee viſits his curious charge of Waxe, Tallow, firre-tree, or any other of innoxious, but illuminative ſubſtance.

Theſe things well obſerved, within ſeaven or eight dayes at the moſt, ſucceeding their fourth and laſt exuviall ſickneſſe; The Wormes diſpoſe themſelves to pay the expence of their Diet. To make preparation for them, there muſt bee accommodations of rods neceſſary for theſe Wormes to clime up to vomit their ſilke, and faſten their Webs by. To aſſemble theſe Wormes (the terme aſſigned to this worke) the moſt proper matters are Roſemary, cutting of Vines ſhoots, of Cheſtnuts, Oakes, Oſiers, Sallowes, Elmes, Aſhes, and in generall of all flexible ſhrubs, not having any diſagreeing odour. The feet of theſe rods evened for the better fixure ſhall bee joyned at 15 inches diſtant to the table below, and the tops of them arched together at that above: Which Epitomall Amphitheater is maſter of as much beauty as thoſe of the CÆSARS in the greateſt volume of their luſtre and magnificence; the upper part of the Arch muſt bee plentifully interwoven with

ſprigs

ſprigs of Lavender, Spike, Thyme, and ſhrubs delectable to the ſmell. By this intermixture the Wormes ſhall have ample ſatisfaction to their reſtleſſe curioſity, where firmly to faſten their rich matter, having an election of ſuch delectation of Perfumes,& variety of ſhoots: But theſe twigs muſt by no means be green, the moiſture extreamly offending the Cattell, and not ſuddenly withering, if the aire be moyſt.

The Wormes being removed to theſe Amphitheatrall Trophies, you may eaſily diſcover their gratefull inclination to ſpinne, by their bigneſſe of body, brightneſſe, and cleareneſſe of belly and neck, neglect of meat,and irregular wandring through the Troope; and a little after to fulfill theſe promiſes they aſcend their branches to vomit, or rather ſpinne out their ſilky ſubſtance. Here you muſt diminiſh their Ordinary, dayly, for they will in ſhort time have united themſelves to thoſe ſhoots or twigs, quite forſaking the table. Thoſe Wormes which clime not before the others union to the branches, are of a latter hatching; and to prevent all unſeaſonable intertextures in generall,to the retarding and periſhing of the whole worke, muſt be aſſembled two other tables arched as theſe, that they may worke together at one time.

The knowledge (when theſe Wormes have perfected their Cods or bottoms) may be obtained by an eare that is but the leaſtwaies curious, theſe creatures making both a pleaſant humming in feeding and continuing it in faſhioning their bottoms, give that noiſe and their compleated worke over both together. That which falls next is the propagation of the ſeed to be preſerved till the next Harveſt.

The Propagation of the Silke-Worme ſeed.

HAppy creature, which liveſt onely to doe mankinde ſervice, and dyeſt when thou haſt accompliſhed it! Miracle of Nature! a Worme ſhut up in his owne monument, breakes through his ſilky grave, transformed into a Butterflye! employes ten dayes to erect himſelfe a ſepulchre, and an equall proportion of time to leave it! diſimpriſoning himſelfe from his owne interment, by perforation of his bottome, he returnes to the view of Mankinde in the figure

of a Butterflye, with wings, as if he had already tryumph'd over his Mortality; which done, he and his co-triumphall Females, coupling together perpetuate their ſpecies by diſſolution of their bodies; and that which compleats the miracle, may ariſe from the long abſtinence of this living three and twenty dayes impriſoned without any ſuſtenance or fruition of that which he takes a particular delight in, day light.

Removing your branches from the Tables, and your ſilke-balls or bottomes from the Branches 5 dayes after the worke is perfected, the Balls are then to be made election of, for ſuch ſeed as you wil preſerve for the year following. *Bonoeill*, & De *Serres* do both agree that there ſhould be proportioned 200 Balls for one ounce of ſeed, the Balls Male and Female (the deſcription of which hereafter) But whereas *Bonoeill* is of opinion that a hundred double or trebble Bottomes which two or three Wormes have ſpunne and made up in common, will produce ſo many Wormes as Bottoms: I demand his pardon if I accede rather to the judgement of De *Serres*: for from every double or triple Bottome there comes forth but one Butterflye, though it hath more within: the Reaſon is, it being not probable that they ſhould be all ripe together, that which is moſt mature by perforation of the Balls, expoſes the other to the aſſault of the aire, which giving them cold, they dye imperfect.

To diſtinguiſh the ſexes.

THE Male of the worme, when grown great, is knowne from the Female, by a wrinkled head, and a great appearance of eyes; the Female hath the head round without any ſuch appearance. In the Bottomes or Balls the Male is knowne, as having work'd himſelfe into a Bottome, long, ſlender, and by much ſharper at one end then the other: the Bottomes of the Female are bigger, ſofter, round at one end, halfe poynted at the other.

The Sex in thoſe Butterflyes is thus diſtinguiſhed: the Male is leſſer of body then the Female, ſtirring the wings more often and more ſtrongly.

Selecting then two hundred bottomes (male & female included in the number) you muſt paſſe a thread through the firſt and outward

Down,

Downe, called the Sleave of the Ball (uſing a wary hand that you pierce not into the ſilke, leſt the cold getting in you ſhould quite abortive your Wormes) of which you muſt make ſeverall connexions compoſed of an equall number of both Sexes; theſe (to prevent Rats and Mice) muſt be hang'd upon ſome hooke in a chamber of middle temper, but ſomething inclining to cooleneſſe, yet however not ſubject to moyſture, that the Butterflyes may come out with the more facility.

Having pierced through their confinement, though nature her ſelfe infuſes in them diſpoſed applications to finde out their oppoſite Sexes, it will be neceſſary to couple ſuch as yet are disjoyned: all which, after you ſhall perceive them in conjuncture, muſt bee ſet either upon Say, Piropus, Tammey, Chamlet, the Backſide of old Velvet, (in generall vpon any ſtuffe which has no woolly Downe, wherein the graine may be loſt, or where it may get betweene the threads, as is linnen) hang'd upon the wall cloſe by their Balls, or in defect of ſuch ſtuffe, take Walnut-tree leaves one handfull, or more as you ſhall ſee occaſion, tye them by dozens backſides together, hang them at ſeverall nailes or pinnes, and ſet the coupled Buterflies thereon. Take the Chamlet, or other ſtuffes, receiving the ſeed, and rub it gently between your hands, and the ſeed will come out with great facility.

The principall time of the Butterflyes iſſuing out from the Cod, is in the morning about eight of the Clock: the ſeed collected muſt be put into a Boxe very cleane paſted with paper, to exclude all aire or duſt, kept in a Cheſt in a drye temperate place where it may be preſerved till the Spring following, avoyding to make any continuall fires in ſuch Chambers, leſt the warmth untimely hatch the Wormes, which being brought forth at ſuch a ſeaſon muſt periſh for want of food.

The Spaniard takes commonly the double and triple Balls for ſeed, not that he conceites every double Ball ſhould produce two Butterflyes, or which is a conceit of more fondneſſe, Male and Female; but becauſe the multiplicity of creatures ſpinning their ſilk in common, make the worke ſo confuſed that they cannot well winde it off, which makes them be put in the ranke of the pierced ones for ſleave; and I muſt ingeniouſly acknowledge my ſelfe to

accede to his opinion; for these double and triple balls are not unapt for this purpose, since they commonly, as *De Serres* observes, come rather from a lustinesse and suppleness of the Worme, then any naturall debility: Which sure are so much fitter to bee culled out, that the best balls may bee made into silke, which will easily winde, and the seede of these which is fully as proper for seed, but lesse apt for silke: neither doe I know why they should not bee preferred, since the Spanish seed proceeding from these double and triple Balls carries a particular preheminence above the rest; which if wee shall make use of, the use is the same with others, except that they must bee clipped at the smaller end with the poynt of a paire of scissors, with a regard that you cut not cleane through the bottome, which would by admission of wind destroy the Worm, and this they doe that the Butterflies, if more then one, may finde an easie passage; the best bottomes (if you will preserve them) for Graine, are great, hard, weighty, and of carnation or flesh colour.

The balls preserved for seed being made choice of, the next thing wee are to fall upon is, how to winde off the bottomes designed for silke: Which would bee of much more advantage for puity and plenty of silke, and facility of labour if they could immediately bee wound off. The silke so freshly taken unwinding without any losse or violence: But this delayed, the Gumme, by which the Worme fastens her threads becomming dry, doth so harden the bottome, that without difficulty and losse, the winding cannot bee accomplished.

This expeditious winding prevents the encloséd Worme of her full metamorphose into a Butterflye, and the bottome from perforation: But then where shall wee finde so many workemen if the designe were generall, as could in seven or eight dayes winde off so many millions of bottomes? Not excluding therefore such as can have that conveniency, the next best course to kill the Butterflyes in those bottomes which wee cannot winde off, is by exposing and laying them in the Sunne, the heate of which in its owne worke stifles this Creature: But let this bee two or three dayes successively (not all at one exposure, least your silke be burned instead of stifling its spinner) two houres before, and two houres afternoone

ternoone each day respectively. Let the bottomes, spread upon sheets, be turned often, that the heate may destroy equally, no one excepted from this sharpe insolation; but this must not bee done with a rude hand, which instead of turning them may bruise the Worme, the slimy matter of whose body, being thus bruised, is very prejudiciall both for staining the silke, and gluing it so together, that no Artist can ever unwinde them.

Removing them therefore oftentimes during such sunning with a gentle hand, wrap them thus warmed in sheets, and let them lye in a fresh dry chamber.

But if the Sunne should faile, an Oven of such moderate heate as is usuall after two houres drawing the bread, or heated to such a degree of warmth (laying it over with boards, and the bottomes in sacks upon those boards, there remaining each time an houre and a halfe, repeating it till your experience by opening the most suspected bottome finde the inclosed Worme consumed) will bee of equall operation.

But that which is the best and least practised course is this: Take your bottomes, and fill such a Furnace or Copper as your Brewers use, halfe full of Water: Within three fingers breadth of this boyling water, lay a lid or planke or board within the Copper, bored through as thick with holes as a Cullender, and so fit to the side of the Furnace, that it by no meanes may sinke into the water: Upon this cover lay a thin Carpet of Darnix, or the like, and upon the Carpet the silke bottomes, which must bee often stirred, with care not to use too much violence. The mouth of the Copper, except when you stir the bottomes, must bee constantly covered, that the heate may smother the Wormes: Your Wormes being dead, lay your bottomes in some roome, where there is aire to dry their moysture. This is an assured (though not vulgar) experiment, and by it your silke becomes as easie in the winding, and as pure in colour and substance, as if it had beene spunne the same moment the Worme had given it perfection.

To winde off the Silke from the Cod, or Bottome.

THe winding off the silke from the Cod or bottome, is thus effected: fill a Caldron full of very faire water, and set it upon a Furnace, heate it to such a degree that the water becomes bubbled,

as though there were ſmall Pearles in the middle, being ready to ſeeth; then caſt in your Cods or bottomes, ſtill ſtirring them up and downe with broome or other ſmall buſhes, if you ſhall ſee that the heate is not capable to make your bottomes winde, augment your fire, otherwiſe abate it.

The bottomes winding the threads will take hold of the broome or bruſhes; draw thoſe threads ſo affixed the length of halfe a yard and more out with your fingers, till all the groſſeneſſe of the bottome bee wound off, which cutting off and laying aſide, take all the threads of your bottomes united into one and according to the bigneſſe of thread you intend to make (as whether ſowing or ſtitching) choſe the number, not letting the other threads fall into the water againe, which muſt bee reſerved to ſucceede) which you muſt runne through an Wyer Ring, appoynted for to ranke the threads which (as you ſhall ſee in the draught or Picture,) muſt be faſtened upon the fore part of a piece of wood ſet directly upon a forme before the round or circle, which wee call a Bobin, in the top of which piece in a little ſpace that there is, are faſtned two Bobins, diſtant from one another two fingers; from this wyer ring the thread muſt bee drawne and croſſed upon the bobins, whoſe onely uſe there is to twiſt the ſilke through a ring which is faſtned in the middeſt of a ſtaffe; above the Bobins you muſt continue the draught of your thread; this ſtaffe which moves with the wheele is called a Lincet ſet a croſſe beneath the wheeles. from that Ring you muſt faſten your thread upon the wheele it ſelfe, which muſt bee ſtill turned till the skeyne of ſilke bee wound up, the Repreſentation ſee in the next figure.

Obſerve, when any thread diſcontinues, his bottome being wound off, to repaire your number from another bottome, this you ſhall perceive when your full number of bottomes ſtir not altogether.

Bee ſure that you artificially cut the knots which will bee in your threads, that your ſilke may bee more pure and uniforme.

Thoſe which caſt Gumme Arabick in the water under pretence to make the ſilke winde more pure and gloſſey, are but impoſtours, it being a meere cheate to make the ſilke weigh the heavier.

Baſins, or Caldrons, wherein you put your bottoms to winde, if

of

of Lead reſtore the ſilke more pure then thoſe of Copper, this Mettall being ſubject to a rubiginous quality, from which Lead is wholly exempt. Let the wheeles be large for the better ſpeeding of the worke, that two skeines may be wound off together. That the fire of the Furnace may be pure, and without ſmoake, let it be made of Charcoale.

The difficulty of their winding may be mollified by ſope, put in the Baſin or Caldron; the old Cods or bottoms hardened by time, will have the naturall Gumme which glues their threads diſſolved, and the ſilke come off much more eaſie.

Thoſe bottomes of ſilke preſerved for ſeed, and pierced by the Butterflyes, may be made of good uſe, if waſhing them in water you throwe them into a Caldron ready to boyle, with ſope in it, which muſt be diſſolved before the bottomes are caſt in: thus let them boyle a quarter of an houre, or thereabouts, which done, take them out, waſh them in cleane water and drye them; being dryed you muſt beat them with a round ſtaffe of a good bigneſſe upon a ſtone or ſome block which is better, which will make them become white, and ſmooth as wooll. The way to ſpinne them after is this.

They muſt with the fingers be pul'd one from one another, and opened as wooll uſes to be in ſuch preparations, let it then bee put on a Diſtaffe and ſpunne as ſmall as you can, or pleaſe.

Treatiſe of the Vine.

THat the uſe of the Vine is really intended by nature for VIRGINIA, thoſe infinite ſtore of Grapes which crowne the forehead of that happy Country are ſo many ſpeaking teſtimonies: But what fate hath hitherto diverted our Engliſh there inhabiting from the publick undertaking a Commodity of ſo ineſtimable benefit, I doe not ſay for a publick Staple (though it would bee as rich as any other one ſpecies of Traffick whatſoever) but even from private Vineyards, where they might ſit under their owne Vine, drinke of their owne Grapes, ſatisfie even the moſt irregular deſire of their voluptuous appetites, and all this *de ſuo*, without entring into

into the Merchants bookes for Wines, peradventure adulterate, without paying the ſweat of their browes for the exudation of the Grape, I dare not determinately judge, leſt I might bee forced to aſcribe it either to a ſtrange nonchalency or ſluggiſhneſſe to their owne profit, or which is worſe an inveterate contempt of all other wayes of improvement (of what ever returne) in compariſon of Fume of Tobacco.

But that they may not bee ignorant of the profit of the Vine, they will bee pleaſed to know that the Vine requires (once planted) little more labour then the Hoppe. To attend upon foure Acrees of Hops is the ordinary undertaking of one man in ENGLAND, who beſides this, neglects not many other labours. If one man in VIRGINIA bee not ſufficient to doe as much as another in ENGLAND, I ſhall either imagine him to bee lame or idle; nor let them object to me the heat of the Countrey; if the mid-dayes be hotter, the mornings are much colder, and the Labourer in VIRGINIA hath this advantage of being full of bread to ſatiety, whereas oftentimes the Hireling in ENGLAND having a family to feed, and ſometimes no imployment, comes to worke with a famiſh'd body, and courage, lives meerly *de die in diem*, with as little hopes of ever changing the copy of his fortune, as renewing the leaſe of his Cottage with his Landlord: thoſe are but leane encouragements. In VIRGINIA the meaneſt ſervant (if he have any ſpirit) is ſtill in expectation of improving his condition, and without any preſumption may cheriſh his hopes, which promiſe him (his time expired) a preſent happineſſe and future poſſibility of a Fortune equall, if not outgoing his Maſter, the encouragement being greater, the care leſſe, and his proviſionall ſubſiſtence by much better: why the Laborer in VIRGINIA ſhould not be (I do not ſay ſuperiour) but equall in ſtrength of body and reſolution of minde, to the miſerable day-Hireling in ENGLAND, needs an OEDIPUS to unriddle.

By this I hope it granted, that the VIRGINIAN may without any extraordinary efforts of ſweat and ſpirits, labour equally with thoſe of ENGLAND, and upon this accompt I ſhall aſſigne a Vignard of four Acres to his tillage, an eaſie taske; let us compute the profit with the labour, and ſee what may be the proceed of this portion well husbanded. That

That an acre of Vines in VIRGINIA (when once growne to perfection) will yield an equall increase to a common Acre of Vines in FRANCE, (there being as great a difference between the soyles as the Acres, and much greater) will I believe be denyed by none, who pretend to modesty or reason: yet the Acre of Vines in FRANCE, one with another, very few excepted, will yield yearely ten or twelve Muyds of Wine, a measure containing seventy two gallons (a very famous Frenchman LIEBAULT, is my Author:) what the common Acre, or Arpent, is in FRANCE, the same man informes us: an Arpent (the common Arpent or Acre of FRANCE) is 100 Pole in the square, the Pole being longer then ours by eighteen inches; so that one French Acre yields three Tun of Wine and upwards; Our Acre being near upon 50 Pole more, we doubt not of profit equall.

The excellent VIRGINIA will pardon me, if for dilucidation of an argument, I make her pure and unexhausted browes descend to weare a Gyrlond of fertility equall to that laborious and over-teeming Mother, the French Kingdome, nay to her common Vineyards: yet let us compute the profit arising from the foure acres, being but one mans labour, we shall finde the product even by that estimate, to be twelve Tunne of Wine, as the recompence of his particular toyle: let us imagine this but at ten pounds the Tunne, and the profits of this single person amounts to 120 pounds *per annum*.

Here they will object the deareneſſe or difficulty of Caske; but this objection must be made by those who know not VIRGINIA, where there is such an excellent convenience, and abundance of peculiarly proper Timber, that the Winter will afford the other Labourers together with our Vigneron leasure, to cleave Pipe-staves sufficient for private use of Caske, and to sell to the publique; one man (during that little season) being easily able to make foure thousand.

But our acre being a third part bigger, the soyle $\frac{1}{3}$ better, why we may not promise to our selves this profit, is an incredulity in ENGLAND, worth a brand of misunderstanding, in SPAINE would deserve the Inquisition.

What ſoyle is moſt proper for the Vine.

HEE which will goe to plant the Vine without the twinne conſideration of the qualyty of the ſoyle, and the diſpoſition of the aire, hath much affinity with him who goes to Sea without Lead or Compaſſe: the one ſeldome attaines his Port, nor the other his Harveſt.

The quality of the ground whereon the Vine thrives beſt, is a fine ſmall Mould, of a ſubſiſtance rather inclining to a gentle lightneſſe, then a churliſh ſtubborneſſe: they which would not have it to be very fat, are ignorant that while the Vine is yong, the ſoyle where you plant may be imployed to other tillage, and by ſuch expence of its native richneſſe, reduced to that which they commend ſo highly, mediocrity: But if the fatneſſe of the ground tranſmit a rich and never-failing ſap into the naſcent Vine, making it grow ſpeedy and ſtrongly, if the Vine participate of this fatneſſe, which it may be they call groſſeneſſe, as deſiring to have it more ſubtile, there is ſmall queſtion to be made, but that this Wine ſo imbodied and fortified by nature, muſt have extraordinary ſpirits to preſerve it, and that age will have refined all that groſſeneſſe into more pure and noble ſpirits; that if tranſported, the Sea will contribute to its melioration: whereas this Wine which they call ſubtile and delicate ſpirits, if either preſerved long or tranſported far, will with ſo much applauded ſubtilty and delicacy loſe all his ſpirits by age and evaporation.

Scruple therefore at the richneſſe of your ground no more then at the rankneſſe of your purſe; tis in your power to correct either if there were neceſſity: let it have the qualities of gentle, eaſie, fine and light, to be ſtirred, ſeated (if poſſible) on the decline of a Hill, not neare to any Mariſh ground, nor having any ſprings gliding through it; theſe Mariſh grounds you muſt avoyd as you would doe Levell in a Valley. And the reaſon is, that the Vine growing in theſe parts has a crude and undigeſted bloud, quickly ſoures, and has neither ſtrength to commend or preſerve it, and the Froſts in the winter time ſinking to his roots, by the moyſt paſſage of his ſituation, kills it; the Grapes plumpe and breake, and when as

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an additionall judgement to your injudicious election, a Rainy yeare comes to afflict, the Kernells breake out, the true juice of the Grape accompanying it, and though it fall out that the Grape ſwell againe, yet let not your expectation ſwell upon it, for inſtead of good Wine proceeding from thence, you will receive nothing but Viny water.

The gentle, eaſie, fine, and light ground being the beſt, does not ſo wholly arrogate all excellency, as to deny an acceſſion, a neighbourhood of goodneſſe to other ſoyles. The gravelly ground yieldeth Wine of a great delicacy, but a ſmall quantity; beſides the infant Plants are in danger of being waſh'd away in any extraordinary ſurfeit of raines, ſuch grounds being not able to give them a deep rooting. The like may be ſaid of ſandy ground which notwithſtanding in ſome places eſpecially where it is of a nitrous ſubſtance, will not yield the Palme to any ground o' whatever richneſſe; other grounds may have an enforced richneſſe, but becauſe uſually all ſuch enfatning compoſt conſiſts of Dung and Urine, which ſpoyle the purity of the Vine: If my advice were of any weight, they ſhould never be uſed for Vintage, till neceſſity commanded my obedience.

For the diſpoſition of the aire, as particularly whether inclining to a Meridian, or Oblique to the South, South-Eaſt, or South-Weſt; If we contemplate the nature of the Vine, that it by inſtinct, preferrs places rather hot then cold, drye then moyſt; that it hateth ſtormes and tempeſts, it affecteth a gentle breathing winde, or a ſerene calme; we may preſently collect that it is neither to be placed open to the North, North-Eaſt, nor (in VIRGINIA eſpecially) to that Nurſery of ſtorms, the North-Weſt quarters, nor upon the tops of Hills, where it lyes equally aſſailable to all: the deare place then for the Vines imbraces, is a Deſcent, towards, not in a Valley (except never ſubject to inundations) that being ſheltred from the more bluſtring Domineerers in the aire, it lye open to the South, South-Weſt, South-Eaſt, or any part of the Eaſt and Weſt, within the South quarter, for ſuch a gratefull manſion, and acceptable ſoyle aſſigned him, doubt not, but he will returne you a rent which ſhall ſatisfie your moſt unbounded wiſhes.

But leſt the eye in the option of your Vineyard, may impoſe upon

pon you, considering that every ground hath some arcane quality which the sight is not able to discover: to make a most certaine experiment, let me propose this way of Examen. Make a pit in the ground (where your intentions are to plant) two foot deep, take a clod of the earth so cast up, powder it, and infuse it in a glasse full of cleare Raine-water, do your best to incorporate it with the water by frequent agitation and mixture: let it repose till the subsided earth have made his perfect residence and settlement in the bottome, and the water recovered her native cleareneſſe; taste the water, and arrest your judgement upon this, that such a tast as the water delivers to your pallate, will that earth transmit to your wine: if of an inoffensive or acceptable relish, you may confidently promise your selfe a Wine pure, and consequently (if the soyle be rich) very noble, nor is a salt taste an ill argument: but if it be a bitter aluminous, or sulphury gust, this place is not fit for your planting, you lose your Wine and your labour.

But VIRGINIA has a more certaine assurance; God and nature have pointed them a soyle out with their owne finger; let them therefore fix their eyes upon those places where either the Vine or Mulberry grow conjoyn'd, or seperate, and let them assure themselves of the excellency of the soyle, a diffidence in this being an affront to Nature: yet this caution is to be used that though Valleyes are Marshy places, may sometime have them by nature, yet their floreſcence would be much more excellent and healthfull if removed to such a ground as formerly we have made choise of.

To make election of Plants.

CUriosity about the choise of your Vine Plants will commend your Husbandry; let the Vine therefore from whence you take your Plant be of as little Pith as may be, such unpithy Vines being both fruitfull and fortified by nature, bearing a remarkable abundance of substantiall Grapes, and strongly resists the violence of the weather, and of this fertility and firmeneſſe will your Plant also participate. Let not the Vine you meane to plant from, be above the middle of his strength, or age, and observe about September those which are most laden with Grapes, fullest of eyes in their branches,

branches, and have been leaſt wounded by the unſeaſonableneſſe of Weather. Take not a Vine growing on a South ſide, to tranſplant him to a Northerne: and ſet this downe for a principle in Nature, that all plants removed to a better ſcituation and ſoyle, anſwer your largeſt hopes, by their fruitfulneſſe: but tranſplanted to a worſe, aſſure your ſelfe that without an extraordinary cultivation, there cannot be the leaſt probability of its thriving.

Let your Plant (if you may with conveniency) immediatly be planted after its ſeperation from its originall; for while it yet reaines any vitall vigour, it will the ſooner apply it ſelfe to the deſire of life and nouriſhment. If your neceſſity will not admit of this feſtination, wrap it tenderly in its owne earth; and when your leiſure will permit you to plant it, let it ſoake ſome foure or five dayes in water, and (if poſſible) running water: this immerging is a very ſtrong preparative to its ſudden taking root.

If you apprehend a neceſſity of keeping him long or tranſporting him, (I imagine it the Cyprian or Calabrian Grape thus to bee tranſportable into Virginia,) put him into a cloſe Barrell fil'd up with earth; and that no aire may mortifie him, let both ends of the Plant be put into Onions or Garlick, or (which is better) made up with wax, and now and then watred, but not more then to keep the earth from reſolving into a dry duſt; for too much moyſture might (inſtead of preſerving him) make him fructifie, and your Plant would become all root.

Wee have already ſpoken how we muſt chuſe, but not what we muſt make choice of: Let your Plants therefore be of thoſe which grow between the higheſt and loweſt, (the loweſt having too much of earthy juice, and the higheſt too little) let them bee round, ſmooth, and firme having many eyes, and about one foot and a halfe of old wood cut off with the new.

The manner, and way to Plant Vines.

HUman curioſity plungeth us in ſo many unneceſſary toils, that it would almoſt take a perſon off from neceſſary labour: Look into *Columella*, the Countrey Farme, the Dutch Husbandry, and all thoſe ſupercilious Writers, and you ſhall ſee them ſtand upon ſuch

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impertinent Puntillos; one while the dependance upon ſtarres benights a man, another while the ground which ſhould produce this or that, muſt be caſt after this forme, or elſe it will be barren in ſpight of the bounty of the Divine Providence.

Not enumerating therefore all their wayes of Planting, I dare lay my life that if the Vine were but ſet on foot in VIRGINIA, the ground prepared for it as they doe their Tobacco there, by a right line, holes made inſtead of their Hillocks, but larger, deeper, and at greater diſtance, that there might ſomething grow betwixt them which might be inoffenſive to it by nature, and cleare it from being choak'd with weedes, or ſomething drawing a contrary juice, (peradventure Onions and Garlick) or ſomething requiring ſmall nouriſhment, (as Lupins) which turn'd into the earth againe (diſtance of five foot being left for a Plough, with caution not to come too neare the Roots, which muſt be bared with a ſtowe, the Plough running firſt the length, and then the traverſe of thoſe rowes, which therefore muſt bee lineally ſtraight) would both fatten the earth, and cultivate the Vine all at one moment. Yet ſubmitting my ſelfe to judgements of greater experience then my modeſty or nature can ever hope for, I ſhall deliver the ſeverall way of planting the Vine, with as much brevity as the matter, and my firſt reſolution rather to contract then inlarge, will permit mee.

The firſt preparing of the earth to receive the Vine muſt bee done in Spring or Summer, where the ground you digge or caſt muſt bee cleanſed from all manner of ſuperfluities whatſoever; namely, Roots, Weedes, Stones, &c. this digging muſt bee ſeverall times repeated, that the earth by alternate changing its place of top and bottome may bee throughly tempred, the dry refreſhed, and the moyſt qualified: Thus cleanſed, caſt it into many furrowes (the ſides whereof the French call Chevaliers or Guides, becauſe it ſhould guide you in the planting) the depth of eighteene inches or more; let the mould caſt up above, bee ſo diſpoſed, that it may anſwer to the depth below.

Note that theſe furrowes in a ſandy, flinty, or wet ground muſt not bee ſo hollow as in that which is rough and crabbed: In the bottome of the firſt you may put ſtones about the bigneſſe of an ordinary

ordinary brick (but round) not bigger, which in the heate of Summer refreshes, in violence of Raine opens a passage to the water, that it dwell not at the Root to rot it.

The best season for planting of Vines is in October, the Moone increasing, the Furrowes must bee made in August, that the exposed earth may have time of digestive preparation.

If your plant have Roots, you must when you plant it cut them off all, except it bee newly gathered, if it bee a slip or cut, which though it bee not so swift of growth the first yeare, yet is of much longer continuance, you must soake it in water, if it bee possible in running water five or six dayes.

Hee which plants the Vine, the ground thus prepared, and haveing a line with him, that hee may observe a just evenneſſe and streightneſſe, both in the Row, and to the opposite Plant, that so every foure may make a regular quadrangle, must bow his plant, the bigger end forward one foot into the earth of the Ditch, letting first some of the Mould from the sides fall into it; let him tread upon the Mould the better to fixe the plant, and with his hand (the foot still pressing upon that part of the plant which is inearthed) gently raise or bow the top of the plant that it may grow erect: this done, let him cast some more Mould on it, to the thickneſſe of six inches, and cut the top of the Plant, so as not to leave above three knots or joynts above the earth: Let him proceede in planting of the rest, observing the prescribed order: some set two plants together in this order, that if one should faile, the other might recompence the default.

If you will have your Vine to grow without stakes or props, cut it so, that you let it not increase above two or three joynts in the yeare, which will make it to stand firme against all stormes, if but naturally violent.

It will bee extreame ill husbandry to plant Vines of different kindes or qualities together, such diversity there is in their season of ripeneſſe; some preventing your expectation by the suddaineneſſe of their maturity, others deceiving it by their late ripeneſſe. Wee have spoken of the planting, let us now handle the culture and dreſſe of it, that his fertility may in some measure requite the labour of his implanting.

The manner of dreſsing the Vine.

MId May will bee a ſeaſon which will beſt informe you, whether your Plants have taken ſo good root, that it expreſſes a verdure and germination in his Branches; when therefore the ſhoot is able to indure dreſſing, let it bee cut within two or three knots of the old Wood, and if any other ſlips ſpring from the Root, cut them away (with care however that it wound not the Root, or the maine ſtock, which are wonderfully offended by the too neare approach of any toole that is edged) that the whole ſtrength of the Vine may unite into one common ſtock or pillar, to ſupport and convey the ſap into the permitted branches, of which you may not let any flouriſh the firſt yeare of its growth. It is obſerved, that to cut the Vine in the decreaſe of the Moone, makes the fleſhy part of the Grape of a more ſubſtantiall groſſeneſſe and feeding, and is a peculiar remedy for thoſe Vines which are given to bee over-ranke with wood: Let it bee the care of the Vigneron to remoove all obſtructions of Weedes which uninvited participate of the Vines nouriſhment: the ſureſt way to kill which, is, to turne them in towards the earth, which is not onely a deſtruction to the thiefe of its moyſture, but a reſtitution of the robbery; for the Weedes ſo inverted enrich the ground to the great encouragement of the Vine, and the no leſſe profit of the Vine dreſſers. Let your knife with which you cut your Vine bee very ſharpe, and let your Vine bee cut ſloping at one cut, if poſſible, and not far from the old Wood, that the growth of the Vine may the more ſpeedily cover the wound.

The Vines muſt bee dreſſed or husbanded three times the yeare, the firſt culture of it muſt bee in March, at which time you are to digge about the Root three quarters of a foot deep, or thereabouts: The next ſeaſon muſt be in April, wherein you muſt digge about the Roote, within a third of the former depth, then you muſt alſo prune it by cutting all the branches, and leaving ſome three knobs or joynts of the new wood in your Vine of the firſt yeares growth, and cutting off all dead or ſuperfluous branches of the old, whoſe permitted branches muſt alſo bee pruned, leſt they

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ſhould ſpend that aliment decreed for the Grape in elongation of the branches, all ſuccors alſo muſt bee plucked away. In Auguſt the like courſe is to bee uſed in the Wine of the precedent Autumne leaving two or three joynts or knobs of new wood: againe the old ones may bee onely digged, if at that time, and at all other times you perceive any dead or wounded branches, you muſt cut them off ſomething further then the mortification or hurt extends; and in all prunings let no Vine bee cut in the knob or joynt, but in the ſpace betwixt; there following uſually nothing but abſolute and irremediable decaying, where they are cut in the articular knitting. If in Aprils dreſſing, the Vine have not branched but onely budded, which is moſt uſuall (but more eſpecially in March) you muſt nip the bud off with your fingers, to the end that the juice which would aſcend to haſten the germination, may bee ſtopped to ſtrengthen and engroſſe the ſtore.

The third yeare the Vine will beare you Grapes in theſe Countries, but I am confident that in VIRGINIA it would beare at the ſecond; and this my confidence is grounded upon the haſty perfection all things receive in VIRGINIA, by much preceding all our neighbour Countries. The Peachtree arrives not to that vitility of growth in eight yeares, in theſe regions, which it obtaines at foure there. The like is verified in Apples and Cherries: and if it be queſtioned how ſuch men which peradventure being in a neceſſity, are not able to attend two yeares for a returne, ſhall in the meane while ſubſiſt: it is eaſily anſwered, that the interualls betwixt the dreſſings of the Vines will afford ſpace enough for a reaſonable Crop of Tobacco; and there is much more labour in looking to 5000. Plants of Tobacco then the like number of Vines, eſpecially if the interſpaces be ploughed, and ſowed with Turnips or Lupines, which both adde to the fatneſſe and unwilding of the ground, and choake up all weeds and graſſe which might afflict it. Contrariwiſe, Tobacco will admit nothing in the Vacant ſpaces, and muſt be perpetually weeded. Further, though other Vine-Maſters preſcribe the digging about the roots of their Plant in Auguſt, which is the buſie ſeaſon of inning the Tobacco, yet I am driven by divers reaſons to wiſh ſuch culture omitted at that time of the yeare, ſince it layes the root by ſo much the nearer

to a violently torrid Sun: which is so far from cherishing of it, that it barnes it: by which means his Crop of Tobacco need not at all to be neglected: but these Vines steale into such perfection by that time they are arrived at foure yeares growth, that twenty thousand Plants of Tobacco though sold at 6 pence *per* pound, (a great rate in VIRGINIA) will not returne you a like profit, which though it may be somethings sparingly believed, yet may be made apparent. For admitting our Vines by that time of 4 foot high, by their often cutting of the shoots, nourished unto a stock strong enough to support it self; of Branches, by the like tillage, equall in vigour, yield but a gallon of Wine *per* piece, yet here is 20 Tun of Wine yearely, for 30 yeares together, so long will the Vine thus husbanded, last fruitfull, and vigorous, if Planted with the slip rather then the Root) without any interruption but that which sets bounds and limit to all things, the divine providence in his dispensation of seasons.

Of the Diseases of Vines, and their Remedy.

BEfore we can justifie our expectations of a good Harvest, we must providently foresee and prevent (as much as in us lies) such casualties as may make our hope abortive; let us therefore cast our eye upon such Diseases which may make the Vine unfruitfull, or after the fruit produced, destroy its desired fertility.

To prevent the Frost from benumming, or absolutely destroying your Vines, let there be layd up in divers places heaps of drye dung, with an intermixture of chaffe and straw, and when you conjecture the approach of the Frost, set this combustible stuffe on fire, and the smoake arising from thence will so temper and qualifie the aire that your Vine for that season will be secured from Dammage: yet if (before you have applyed this preventive remedy) the fruit of your Vine be destroyed, cut it off very short, and the strength continuing in the remainder will so fortifie it, that the next yeare it will recompence you double in the quantity of your fruit; for what it hath been rob'd of by the present.

To provide against the blasting of your Vine: When you perceive it upon the point of budding, cut it as late as may be; for this

t his late cutting it will make your Vine something later, and by consequence, blossome or flower at such time as the Sunne is ascended to his greatest degree of heat and fervor.

To breake off such Mists and Fogs as are already gathered in the aire, and give probable menaces to fall upon your Vines, you must apply your selfe to this remedy: let a smoake round about your Vineyard be made with Goats dung, kindled and set on fire. Such Fogges as have outstripped your care and already fallen upon, and endammaged your Vines, must have the malignity of their vapors taken off, or at least asswaged by irrigation of Vines, with the water in which the leaves or roots of wilde Cucumbers, or Coloquintida have been layd some time to infuse: this must be applied immediatly after the mists. Some are of an opinion that Bay-trees (which by the way are dangerously sociable to the Vine) planted round, but not too near the Vineyard, wil priviledge the Vine from this distaster, by attracting all the ill disposed mallice of those Fogs unto it selfe. This till experimented will hardly be worthy beliefe.

It is an opinion no way contradicted, that fertility is restored to a Vine become barren, if humane Urine kept a long while stale, to make it the more salt and ranke, be dropt by degrees upon the Vine stock, which must immediately after be laid about with dung and earth mixt together: the season for the application of this Cure must be in Autumne. Another way I should conceive to be altogether as effectuall, namely, to leave it nothing but the stock, bare the roots, and lay there either Acornes, Chesnuts, or rotted straw; and if the bignesse of the root will permit it, to cleave it a little way, and to thrust into the fissure a piece of Vine wood, cut small for the purpose; it being certaine that trees themselves sometimes groane under the sicknesse of being hide-bound: Vines are perceived to want moisture, when their leaves turne of a deep red colour: this Disease is cured by watring them with Sea-water, or stale Urine.

The Bleeding of the Vine.

THE Vine sometimes is troubled with an extraordinary Efflux, or emanation of its juice; some call it the weeping, others the bleeding of the Vine, and this Disease is commonly so violent,

that if not stopped it leaves the Vine without blood and life. The remedy is to breake the barke of the Vine upon the body thereof, and to anoynt the wound with oyle boyled to the half, or else with the Lees of Wine not salted; this done, let it bee watered with Vinegar, which by how much the stronger it may bee, is so much more effectuall.

The scattering Vine.

THE Vine sometimes is oppressed with an unretentive scattering disease, as unable to maintaine the fruit shee hath produced, which shee therefore discharges, and lets fall from her; the symptomes by which you are to judge of this disease, are an unnaturall palenesse and drynesse of the leaves, the branch it selfe languid, broad, and of a more pithy softnesse then usuall. The cure to this, is to rub Ashes beaten and mixed with strong Vinegar about the foot of the Vine, and to water all that is round about the stock: *Quere*, whether fissures in the Barke made with a sharpe knife some sixe inches long may not bee an additionall Receit to the former prescription. The tree peradventure having contracted this malady by too close imprisonment in the barke, being in a manner hide bound; how ever the foregoing Medicine cannot in this case but sort to better effect, if the tree and barke joyntly be rubbed over then the barke onely, unlesse this Medicine could give a relaxation to the barke, which I have no faith in.

The Vine too full of branches, or luxuriant.

THE Vine expending it selfe too wastfully in overmany branches, must bee cut very short. If this overcome not that luxury, the usuall remedy is, let it bee bared at the Roots, and River gravell layd round about the stock, together with a few Ashes or else some stones. The reason I apprehend not, except it bee to check its fertility, which I conceive may more prosperously bee effected, if onely the branches being cut, and the stock low, you suffer that exubrancy to waste it selfe in adding more corpulency to the stock, which will of it selfe bee a sufficient spender to re-

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ſtraine and confine the former liberality of juice.

The withering Vine.

IF the Grapes languiſh and dry away as they hang upon the Vine, before you apply a remedy you muſt caſt away all that are already affected with this contagion; then water the reſt with Vinegar, in which Aſhes of Vine branches have beene infuſed. The moſt aſſured remedy is to water the Root of the Vine, from whence the diſeaſe cometh with the ſtaleſt Urine; the former Remedy being ſomething irregular, as if it were eaſily feiſible to remove a malady by application to the effects, without conſidering the efficient.

The rotting of Grapes upon the Vine.

THere are of Vines whoſe fruit putrifie upon the Branches before they come to maturity: this diſeaſe is remedied by laying old Aſhes to their Root, or Gravell, or Barley meale mixed with the ſeed of Purcellane about the body; *Quære*, whether this diſeaſe proceed from a Plethorick rankneſſe or emaciate debility: if from rankeneſſe all application of aſhes hurt it: the ſymptomes of rankeneſſe are, when a tree laviſhes his moyſture into too many branches, which may make him neglect to feede the fruit, as unable to maintaine two ſpenders; and I am confident the naturall remedy for this is to bare him (as much as poſſible) of wood, that it may divert the nouriſhment to the Grape; if from debility, which you ſhall perceive by a flaccid palenes in the leaves, the ſame remedy which wee preſcribed to the withering Vine, *viz.* to water the Root with Urine of a long ſtaleneſſe, will bee the moſt proper.

The biting of the Cow or Oxe.

INdeede the beſt way to prevent this diſeaſe, is to have your ground either well paled or quickſetted, or both: But that the biting or breathing of Kine may not endamage the Vine (which hardly recovers after ſuch wound or infection) water the foot ſtock

of your Vine with such water as the Tanners have used in dressing and mollifying their raw Hides, and you may promise your selfe to bee secured from them, they as mortally hating such sents, as the Vine abhors their bite or breathing.

Against Caterpillars.

THe opinion is, that Caterpillars and other noysome, though little Vermine, will not molest the bud or leafe of the Vine, if the hooke or hedgebill wherewith you prune and cut off the superfluous branches of the Vine be anoynted over with the blood of a Male Goat, or the fat of an Asse, or of a Beare; or with the Oyle wherein Catterpillars or brayed Garlick have beene boyled, or if you anoynt and rub them with the purse or sheath of a Badgers stones, after your hooke has beene ground: These are curious rather then apparently approved Medicines, and for their reason I must demurre to give it, *Quare*, whether the Oyle wherein Catterpillars or brayed Garlick have beene boyled well, rubbed about the stock of the Tree, may not make those Reptilia abhor the ascending, or whether the juce of Rew so applyed, have not the like vertue.

The driving Locusts from the Vine is done by fumigation, as either firing of old Oxe dung, *Galbanum*, old shooe soles, Hartshorne, womens haire; but that which they propose last, I conceive to bee the best, namely, to plant Pionie neare them.

To prevent Pismires.

PIsmires, who divers times fret in sunder the wood of the Vine, even to the very marrow, will not at all approach it, if you anoynt and rub the stock with the dung of Kine, or grease of Asses.

The Bay-tree, Hasell-tree, and Coleworts beare a particular enmity to the Vine, and expresse it by effects when planted neare; this I cannot believe to bee out of any Magicall Antipathy, but rather that these (as the Plum-tree) are great and strong succors of juice, and happily drawing of the same, by which the Vine is more

more particularly nourished, of which being cheated, it is no wonder if she expresse a decadency.

The manner of the Vintage.

AND now wee are come to that which is most acceptable to mankinde, the successefull fruit of his labours reaped in his Vintage, which wee must not of a naturall greedinesse precipitate, till the Grapes bee of such a kindely ripenesse of age, that to let them continue on the Vine longer were to lose them; this ripenesse is visibly understood by a mutation in the Branch and Grape; in the Branch you shall perceive a manifest mutation by an incline to rednesse in the Grape; if it bee white it alters towards a yellow, if red towards a black colour; nor are the taste and touch lesse discerners of such full maturity; for if they bee sweete in taste, and the liquor of a glutinous substance, cleaving to the finger; wee may conclude that both they, and the time to gather them are of full ripenesse. There are also other signes, if the kernell expressed out of the grape betweene your fingers, come out cleane, and altogether seperate from the flesh or pulpe of the Vine, if after such expression (gently performed) the Grape diminish nothing from his bignesse, &c. These all, or the most of them concurring, prepare for your Harvest.

Yet in VIRGINIA, where the Harvest is more abundant then the Labourers, to prevent a glut of worke flowing upon few hands, and consequently not possible to bee throughly equalled: It will not bee amisse to use both anticipation by accelerating nature with artificiall meanes in some, and retardation by arresting the speede of growth in others, to accelerate Ashes layd to the foot of Vines, and those Vines planted to something more advantage of an amorous Sunne, will make them antecede the others, at the least by their advance of foureteene dayes; the other in their naturall course following that space after, and the others more particularly retarded (which may bee easily effected by the pruning of them later then the rest just upon their preparative to bud; which arresting the sap makes it afterwards (though later) returne with a greater abundance) staying foureteene dayes later, there will

will bee compleately fixe weekes time for the gathering in of your Vintage. And by this meanes you have your Vineyard tilled or manured every third yeare all over, which will bee no ingratefull acceſſion to its duration in fertility and ſtrength: Thoſe of the moſt forward ripeneſſe this year, being retarded the next, and thoſe of the naturall maturation husbanded in that manner, the next Winter.

The fitteſt ſeaſon to gather them muſt bee in a ſerene unclouded sky (the Grapes having any Raine or Dew upon them when gathered, loſing much of their perfect ſtrength and goodneſſe;) for the Wine made of Grapes throughly dryed in their collection, hath a greater priviledge of force and continuance: But before this collection bee attempted, all things fitting to receive your Vintage muſt bee prepared in cleanlineſſe and order, *viz.* Baskets, Caske, and Fatts ſtrongly hooped, Tubs great and ſmall, Stands, Preſſes, &c. and all ſcoured, waſhed, and furniſhed with their neceſſary inſtruments and conveniencies.

The Grape gatherer muſt diſtinguiſh and ſeperate the leane, green, ſower, withered, or rotten Grapes, from thoſe which are of abſolute ripeneſſe and ſoundneſſe. That the Wine by ſuch an uncomely confuſion or mixture may not bee leſſe pure, ſprightly, and healthfull, then it was intended by nature, ſuch inconſiderate Gatherers are ſayd to bee of the Divells ſending, to ſpoyle Gods proviſions. Nor ſhould they confuſedly mixe good with good, if of different quality, as to mingle that which is ſtrong and rich, with which is ſmall, but delicate. They preſcribe that the Grapes ſo gathered ſhould bee left in the ground at leaſt a day or two, and that uncovered, provided it raine not; by which meanes, ſay they, they will become much better, ſince the Sunne dew, and earth, by this expoſure taking from them what ever they have of bad unprofitable moyſture, refine and purifie them. A counſe as far as my ſpan of reaſon can extend, ſo far from this promiſe of refining and purifying, that it abſolutely tends to their corruption. Have they wanted the Sunne and Dew when upon the ſtalke? Could not the ſame Sunne and Dew which enripened them, refine and purifie them there? As for the earths meliorating them, if melioration bee underſtood by putrifaction, 'tis eaſily granted; Apples that

lye

lye on the ground are so meliorated, that is to say rotted, and shall the Grape a more delicate and tender fruit avoyd it? This is by way of digression, but it is necessary; for without this caution a modest man which reades with an obedient judgement any bookes of these men, taking the Authour for an αὐτόφωρα, subscribes to it, observes the prescription, and gaines a doctrine of future providence, by the losse of his present Vintage.

But after the Grapes have remained a day or two in the house, it will bee time to put them into the Fatt to bee trodden out equally. Those which tread the Grapes should before they go into the Fatt have their feete and legges washed extreamely, and themselves covered with a shirt as well as drawers, that their sweat may not mixe with the Wine, and that nothing in the act of eating fall from their mouths into it, they must bee punctuall in abstaining from eating of the Grapes, while they are at this their labour.

Surely this way of treading the Grape is derived from some abstenious man, who devised this stratagem under a pretence of expediting the worke; but indeede to deter men from drinking that which is so uncomely prepared. I know they will alledge that by treading it flowes more naturally, and withall more pure forth, then that which is pressed; but withall give mee leave, say that the very Presse it selfe if it bee not too violently and greedily laboured, makes it glide forth altogether as naturally and purely, and which is more with greater equality; for in the Presse, all the Grapes feele the impultion at once, and if the Owner bee not too covetous to bring the drosse and grosse parts of the Grape to a second squeezing, and mixing with the first; without dispute the Wine so expressed is altogether as good and strong as that which is trodden, but I am certaine much more cleanly.

The Wine (however) being expressed must be poured, drosse, Huskes, and all, into a Fat to worke or boyle in, which it must doe for the space of foure and twenty houres at the least, if you will have it fine, delicate, and subtile; but if you desire to have it strong and noble, let it worke in the Fat foure or five dayes, with a Covering over it, that so the vapour thereof may not exhale, or his force waste it selfe.

The Fat, or Tub prepared, must have immediatly before his re-

ception of the Wine, a little bunch of Vine branches laid before the Tap-hole, which (that it may not heave up with the Wine) must be kept downe with a cleane stone or Brick, or which is better and lesse offensive, a ring of Lead wound about it: this when you draw the Wine will hinder the Huskes or Grapes from comming out with the liquor. Your Fat must not be full by halfe a foot or more, that the Wine may have the more space to boyle or worke in.

Your Wine invessel'd must not be filled up to the Bung, nor the Bung closed, that the Wine may have the greater liberty of despumation, and rejecting whatever it findes reluctant to its owne nature.

Every day you must fill up what is expurged, and something more, till you finde the Wine throughly appeased, and discharged of whatever might be obstructive to its generosity: nor must this Caske be in the Cellar; but either in the open aire, or in some Barne where it has a liberall respiration; besides the defects in Caske cannot be so easily discovered when the Wine is in the Cellar, as in open places. When it is so throughly settled, that it hath given over all appetite or signe of boyling, you may have it committed to your Cellar, which should stand upon the North here, (in VIRGINIA upon the North-west as the coolest and driest Angle) paved with gravell or drye earth, which is lesse subject to moysture or exudations then Brick, or especially stone, absolutely remote and unmolested by any ill odours of Stables, Sinkes, Bathes, Marshy places, &c. neither should it have any thing shut up or kept in it, which have any sent of acrimony or harshnesse, as Cheese, Garlick, Onions, Oyles, (Trane, Neatsfoot, Linseed, and others, not the Salade-Oyle) it being observed, that nothing is more open or obnoxious to contagion then Wine, especially when new.

Your Vessells must be so rank'd in order that they touch not one another, by this meanes to leave a liberty of sight to foresee a misfortune, or prevent it when happened. They must be so close stopped in the Bung with Clay, that not the least irreption of aire may be capable to taint it, to which it is very subject.

To cause new wine to bee quickly purged, put (after this proportion

portion in the reſt:) to 15 quarts of new Wine, halfe a pint of ſtrong Vinegar, and within the ſpace of three dayes it will bee fined.

To preſerve Muſtor new Wine all the yeare, take that Vine which voluntary diſtilleth from the Grape, before it ſuffer the preſſe, and put it into a Veſſell pitch'd within and without the ſame day: let the Veſſell be halfe full, and very well ſtop'd with plaſter above; and thus the new Wine will continue a long while in his ſweetneſſe. But to adde to this experiment and the continuance of the Wine, you muſt hinder it from working, which you may well doe, if you put the Veſſell into ſome Well or River, there to remaine thirty dayes; for not having boyled it will continue alwayes ſweet, and is preſerved by the heat of the Pitch. Others prefer the burying of this Veſſell in moiſt gravell: and (which in my opinion is the beſt) others cover the Veſſell firſt with the droſſe of the Wine preſſe, then heap upon it moyſt gravell; by which meanes, ſomething interpoſing betwixt the extraordinary moyſture and cold of the gravell, which might have ſome influxe upon the Wine, your Muſt preſerved in an excellent meane of temper.

To know if there be any water in the Wine.

THE Malice of ſervants ſometimes ſwallowing downe their Maſters Wine, and fearing to be diſcovered if the quantity be diminiſhed, or the baſeneſſe of the Dealer to impoſe upon the Merchant, makes both of them adulterate it with water, which not being diſcernable to the eye, may be made familiar to your knowledge by this experiment: Take a withered Ruſh, immerge it in the Wine; after a ſmall ſpace draw it out againe: if the Wine have been thus baſtarded, you ſhall perceive the water cleaving to it. Otherwiſe, take raw and wilde Peares, cutting, and cleanſing them in the midſt, or in lieu of them, Mulberries, caſt them into the Wine, if they float, the Wine is neat and cleare from ſuch ſophiſtication; if they ſubſide there is water in it. Some doe anoint a Reed, a piece of wood, or paper, hay, or ſome other little bundle of herbs, or ſtrawes with Oyle, which if they drye, put into the

Wine, and after draw them out, if the Wine have been embaſed with water, drops thereof will gather unto the Oyle. Another ſure tryall is to caſt unſlaked Lime into the Wine; if there be any adulteration, the Lime diſſolves, if the Wine be undevirginated, the Lime collects thereby a harder cementation. Others take of the Wine, and inject it into a Frying-pan wherein there is boyling Oyle, and the Wine (if depured) declares it with a loud noiſe, and frequent Bubbles. To make another tryall, lay an Egge into the Wine, the Egge deſcending, manifeſts the abuſe, not deſcending, the Wine is as the Grape bled it.

To ſeperate Wine from Water.

BUT as the miſerable man in the pit deſired his friend not to queſtion how he fell in, but to adviſe how he ſhould get out: We will not be ſatisfied that there is water in the Wine, but how it may be ſeperated from it; which if we may believe the deliverers of it, who have publiſhed it to the World in their names, you muſt put into the Veſſell of Wine melted Allum, then ſtop the mouth of the Veſſell with a ſponge drenched in Oyle, which done, turne the mouth of the Veſſell ſo ſtopped, downewards, and the water onely will come forth, leaving the Wine pure: the reaſon of this I cannot give, and have onely read (not ſeen) the expeririment.

The way to correct over much wateriſhneſſe in Wine.

IF gluts of raine have made the yeare ſo unſeaſonable, that the Grape hath contracted a watry quality to the diminution of his Winy goodneſſe: or if it fall out that after the time of gathering them, there fall ſuch ſtore of raine, that the Grapes inſtead of Dewes are too much wetted, (ſuch is the profit of expoſing the gathered cluſters into the open aire for 48 houres) the remedy is to tread them quickly, and finding the Wine weake, by taſting it after it hath been put into the Veſſell, and begun to boyle there, it muſt preſently be changed, and drawne out into another Veſſell, for ſo the watry parts that are in it will ſtay behinde in the bottome,

tome, yet the Wine ſtanding ſtill charged, will be totally correct-ed, if you put to every fifteen quarts of Wine, a pint and a halfe of Salt.

To make Wine of an acceptable odour.

IF you will perfume your Wine with a gratefull odour, by which the braine may be ſtrengthened, as well as the heart exalted: take a few Myrtle-berries dry, bray them, and put them into a little Barrell of Wine; let it ſo reſt, cloſe ſtopped, ten dayes afterwards uſe it at pleaſure. The like effect will follow, if you take the bloſſoms of the Grapes (thoſe eſpecially which growe upon the ſhrubby Vines) when the Vine is in flower, and caſt them into the Wine, the brimmes of the Wine-veſſell being rub'd over with the leaves of the Pine and Cypreſſe tree, and this will give it a fragrancy delightfully odorate: Or which is of equall facility, you may hang an Orenge, or Pomecitron, (being of a convenient greatneſſe) and prick it full of Cloaves, and that in ſuch ſort as it may not touch the Wine, ſhut up in all theſe Applications, the Veſſell very cloſe. If this like you not, take the ſimples of ſuch matter as you would have your Wine to ſmell of, infuſe them in *Aqua vitæ*, the infuſion may be repeated by percolation of the old herbs, and addition of new, till it have gotten a full and abſolute perfection of thoſe odours you deſire, then poure the *Aqua vitæ* (the herbs ſtrained from it) into the Veſſell of Wine.

To make Cute.

YOU may make the boyled Wine called Cute, if you boyle new Wine that is good, lovely, and very ſweet untill the third part thereof bee conſumed; when it is growne cold put it into a Veſſell and uſe it. But to make this Cute, that it may continue all the yeare, gather your Grapes whole, and let them lye ſpread three dayes in the Sunne, on the fourth about noone tread them. The liquour or ſweet Wine which ſhal runne out into the Fatt before the droſſey ſubſtance come under the preſſe, muſt bee boyled one third as before; then to every nineteene quarts of Wine adde an

an ounce of Irees or Corne flag well brayed, ſtraine this Wine without the Lees, which being done, it will continue ſweet, firme, and wholeſome.

To cauſe troubled Wines to ſettle.

TO cauſe troubled Wines, and ſuch as are full of Lees to ſettle, poure into thirty quarts of Wine, halfe a pint of the Lees of Oyle boyled, till the third part bee waſted, and the Wines will immediately returne to their former ſettlement. Otherwiſe, which is better and more eaſie, caſt into the Wine-Veſſell the whites of ſix or ſeven Egges, and ſtirre them together very well with a ſtick.

To know whether the Wine will keepe long.

THE knowledge whether the Wine will continue long or not in a good condition, is thus made apparent: When your Wine is tunned up, you muſt within ſome time after change it into another Veſſell, leaving the Lees behinde in the firſt; which you muſt diligently ſtop from taking any vent whatſoever; after ſome time you may looke into the Lees with carefull animadverſion, whether they change or contract any ill ſent or not, or whether they breed any Gnats, or other ſuch Creatures; if you eſpye none of theſe mutations or corrupt generation, repoſe your ſelfe with all confidence that your Wine will continue pure to the longeſt: But theſe ſymptomes diſcovered, will bee ſo many admonitions to diſpoſe of that Wine with the ſooneſt, which is already by nature inclined to turne bad and corrupt; others take a pipe of Elder, or ſuch other wood as may bee hollowed through, with which they receive the ſent of the Lees, and by them informe themſelves how the Wine is conditioned.

A good pallate will divine of Wines by the taſte, namely that if the new Wine bee ſharpe and quick, they repoſe confidence in its goodneſſe and continuance; but if flat and heavy, then they expect nothing but the contrary to good qualities: againe, if the new Wine (when put into the Veſſells) be fat and glewy, the ſign is proſperous; but if contrariwiſe, it be thinne and weake, it is an argument

argument that it will eaſily be turned,

To keepe Wine at all times.

TO effect this, you may caſt Roch-Allum (very finely powdred) into the Veſſell which you meane to put your new Wine in, or bay Salt very finely powdred: or pibble ſtones, and little flints taken out of ſome Brooke, or which will retaine the ſpirits of the Wine from evaporating; more certainly Salade Oyle, ſo much as will cover the ſuperficies of the Wine.

To make that Wine ſhal not Flowre.

WIne will have no Flower, if you put into it the Flowers of the Vine, gathered, and dryed, or the meale of Fetches, changing the Wine into another Veſſell, when the meale or Flowers are ſettled downe to the bottome.

To prepare Phyſicall Wines.

NEither is this digreſſion impertinent; Phyſitians are not ſo frequent in VIRGINIA, as in PADUA, or LONDON, and were there more, yet the vaſt ſpace of ground, thoſe people take up in their ſcattred dwellings, makes the addreſſes to them very difficult: that therefore they may (in abſence of the Phyſitian) have ſome common remedies for common diſeaſes; I have thought fit to give them this accompt of Medicinall Wines out of LIEBAULT, all of them of excellent Virtues, and eaſie preparations; the firſt ſhall be

To make Wines of Wormewood.

TO which effect, take of Sea-Wormewood, or in default of that, common Wormewood, eſpecially that which hath the ſmall ſtalke, and ſhort leaves, eight Drammes; ſtamp them, and binde them in a cloath which is not woven too thick, caſt it into the Veſſell, pouring new Wine upon it, making this accompt, that to every

every three pints of Wine there must bee eight drams of Wormewood; continue this proportion in the filling of your Vessell, which you must leave with the vent open, that the Wine fall not a new to boyling. The use of this Wine is good for the paine of the stomack and liver, and to kill Wormes.

To make Wine of Horehound.

THis Wine being very soveraigne for the Cough, must bee made in the time of Vintage, to which purpose you must gather of the Crops and tender stalkes of Horehound, of that especially which growes in leane untilled places; afterwards cause them to bee dryed in the Sunne, make them up into bundles, tying them with a Rush, sinke them in the vessell to 65 quarts of new Wine; you must put eight pound of Horehound to boyle therewith, after the Wine is settled the Horehound must bee taken out, and the Wine stopt very diligently.

The Wine of Anise and Dill very good against the difficulty of the Urine: The Wine of Peares against the flux of the belly; the Wine of Bayes against the ach and wringings of the belly; the Wine of *Alarum Bacchar* against the Jaundise, Dropsies, and Tertian Agues; the Wine of Sage against paines and weakenesse of the sinewes, are all made as the Wine of Wormewood.

To make Wine of Betony.

TAke Betony, the Leaves and Seedes about one pound, put it into twenty quarts of Wine, and at the expiration of the seven moneth, change the Wine into new Vessells. This most excellent Wine aswageth the paine of the Reines, breaketh the stone, and healeth the Jaundise.

To make the Wine of Hyssop.

TAke the leaves of Hyssop well stamped, tye them fast in a very fine cloth, and cast about one pound of them into twenty quarts of new Wine; this Wine is peculiarly excellent against the diseases

diſeaſes of the lungs, an old Cough, and ſhortneſſe of breath.

Wine of Pomgranates, made of Pomgranates that are ſcarce ripe, being throughly bruized, and put into a veſſell of thick red Wine, ſerveth of ſingular uſe againſt the fluxe of the belly : to which end alſo ſerve the Wines made of Services, Mulberries, and Quinces.

The Ancients had a very high opinion of Treacle Wine, from conſideration of its extraordinary vertue in aſſwaging and healing the bitings of Serpents, and other venemous Beaſts. Nor had the Vine ſolely this virtue in its Grape, but in the leaves alſo ſtamped and applyed unto the grieved part. This Vine is thus prepared : cleave three or foure fingers breadth of the Plant you intend to ſet, take out the pith, and repleniſh the vacant part with Treacle, afterwards ſet the cloven part covered and wrapt in paper. Thus Vines may bee made ſoporiferous, if you prepare them in the ſame manner with Opium, as before with Treacle, laxative by preparing it with ſome ſoluble purge. By this meanes you may have Wine to taſte like the Greeke Calabrian Frontignac, or any other noble for its excellency ; if the Lees purified and preſerved bee inſerted into the pith of the branch, Aromatick, if to theſe Lees you adde compounds of Cynamon Caſſia, Cloves, or what ever ſhall bee moſt agreeable to the noſtrill and pallate.

To remedy Wines inclining to corrupt ; and firſt of Wine beginning to ſoure.

IF you perceive Wine beginning to waxe ſoure, put into the bottome of your Veſſell a pot of water well ſtopt, cloſe the Veſſell, yet ſo as at a vent hole to receive and tranſmit a little aire : the third day draw out the pot, and you ſhall ſee a noble experiment of attraction, for the water will be ſtinking, and the Wine ſound & neat.

At what time, and by what accidents Wine is moſt apt to corrupt, with its remedy.

THE ſeaſon when Wines are ſubject to turne or bee troubled, is about the Summer ſolſtice, *viz.* the 11. of June, at the ſame

time that the Vine emits her blossome; nor then alone, but sometimes about the Dog-dayes, by reason of the variety of heates: generally the Wine is in some sort of commotion, when a constant South winde disturbes the aire, whether it bee in Winter or Summer, in great and continued raines also, and windes in Earthquakes or mighty Thunders. To keepe them from turning is by the injection of pan salt, when they boyle or worke, or else of the seed of smallage, Barley-bran, the leaves of Bay-trees, or of Fennell seed brayed with the Ashes of the Vine brayed. The like effect have Almonds cast into the wine, or the Ashes of the Oake; the Meale of the white Fetch both defends the wine from turning, and keepeth it in his soundnesse. Allum broken in pieces the same, the worst application is of Brimstone, Lime, Plaister, &c. To recover the wine when turned, must bee effected either by changing the Vessell, by beaten pepper; or take whites of Egges, beate them very well, and take the froth from thence arising of them, poure them into the Vessell, which you must immediately roule after its infusion: Or else take twelve Kernells of old Walnuts (the Virginian Walnut I conceive exceeding proper) rost them under the Ashes, and while they are yet hot, draw a thread through them, hang them in the wine, where they must bee till the wine (which will not fail) recover its former colour.

If the wine become troubled, either the Kernels of Pine Apples, or Peaches, or the whites of Egges, and a little salt will not faile to cleare and refine it: Others take halfe a pound of Allum, as much Sugar, make a very small powder thereof, and cast it into the Vessell.

To helpe Wine that beginnes to wast and die.

IF you by manifest Symptomes apprehend your wine suddenly inclining to degenerate and corrupt, this course is prescribed: If it bee Clarret, take the Yelke of an Egge, if white, the white; adde to it three ounces of cleare bright stones taken out of a running River, make them into a small powder, together with two ounces of Salt, mingle all together, and (the wine shifted into another Vessell neat and cleane, not tainted with any smell beforehand)

cast

caſt in this Compound; mingle it with the wine five or ſixe times the day, untill three or foure dayes bee paſt. This remedy is not preſcribed when wine is abſolutely ſpoyled, for then it would bee applyed to no purpoſe; but that the carefull Maſter ſhould by his obſervation of it to ſuch a diſpoſition, prevent it by this experiment.

To reſtore Wine growne muſty, unto his former purity.

CAſt into the Veſſell Cowes milke ſalted: Some (but to the infinite unhealthfullneſſe of him that drinkes it) attempt this reſtauration with Allum, Lime, and Brimſtone, a more undangerous way is to infuſe in it Juniper-berries, and Irees Roots: Yet if the wine ſhould continue this ill ſenting quality, by having taken winde: Let it bee rouled too and againe to awaken the ſpirits thereof, that they may the better diſperſe the ſtrength of its infuſion: afterwards ſet it againe upon his cantling, repleniſh the Veſſel and ſhut it cloſe to prevent winde for the future.

To preſerve Wines from ſowring, may bee performed by your diſpoſing of your Veſſell in a place that is very coole and dry (the Veſſels being very well filled and well ſtopped) to prevent as well the emiſſion of the ſpirits, by which the Wine continues vigorous, as the admiſſion of aire. But in regard all men are not the maſters of ſuch opportune conveniencies, being forced ſometimes to make uſes of places obnoxious to heate, and drawing one Veſſell a long time, cannot hinder the ſecret invaſions of aire; yet if you perceive in time that your Vine begines to harbour an acid or ſoure quality, you ſhall preſerve it from falling into a full degree of ſoureneſſe; if you take a good piece of Lard, wrap it well in a Linnen cloath, tye it to a ſmall cord, and let it downe by the Bunghole into the middle of the Wine, ſtill letting it lower as the Wine decreaſeth. Some adviſe, and not without a great apparence of reaſon, to put into the Veſſell, Oyle Olive, or Salade, in ſuch quantity, that it may onely cover the ſuperficies of the Wine: Which Oyle when the Wine is drawne off from the Lees, may bee ſeperated from them, and preſerved.

To take away the wateriſhneſſe and crude moiſture of the wine,

put into the Vessell the leaves of the Pomgranate-tree, though in my opinion such Wine being easily knowne in the Fatt, when first trodden, should be corrected by boyling, as afore.

The remedy against venemous Beasts falling into the Wine, as Adders Rats, &c. is, so soone as the dead body is found, to burne it and cast the Ashes into the same Vessell, stirring it about with a wooden stick: Others give advice to put hot bread into the Vessel which will attract all the venemous qualities to it selfe, and cleare the Wine.

Of the Olive.

THE Vine and Olive being such delightfull associates as to expresse a mutuall emulation for the Glory of fertility when planted together. This Treatise shall not divide them, they are both exhilaratives, the Vine rejoyces the heart, the Olive glads the countenance; and that VIRGINIA may expresse the delight she affords to mankinde by being reinforced with this second Sister of laughter, the Olive; this discourse particularly designed to her improvement, showes its planting and culture when planted.

The Olive tree, though it delight in a rich fat ground; yet if he have a warme aire, and a South, or South-East wind to refresh him, will in all places testifie a bounteous gratitude for its scituation in an almost unlaboured for fertility: Yet to prepare a place for this rich plant to prosper on, his prosperity being no small part of your owne, you must digge the pits where you intend to plant them, a yeare before such implanting; in this pit burne some straw, or which is better castings of Vine or Brambles (but no part of Oake, there being such a particular enmity betwixt this tree, and the Oake, that the Olive not onely refuses its neighbourhood, but dies if planted in the place where the Oake has beene rooted up) or you may leave it to the Sunne and Raine, which will without such adustion exhale and purifie all infectious vapours: The place being provided to plant upon, we must next select our Plant.

Select your Plants from the Shoots or Branches of those Olive trees which are yong, faire, and fertile: Let them bee in thickneſse the circumference of an ordinary wrist, in length eighteene inches; plant it the bigger end downewards into the earth, prepared as be-

fore

fore, and ramme the Mould, mingled with Dung and Aſhes cloſe about it: Let it be digged every yeare in Autumne. The time to plant it is in April or May, it muſt not be tranſplanted for the firſt five yeares, nor the Boughs cut or pruned till it have attained eight. Graft it not but upon it ſelfe, ſo will it beare fruit better in the ſpecies and number; in its tranſplantation you muſt take up as much of the ſoyle with its roots, as you can poſſible, and when you reſet it, give it the like ſcituation for Coaſt and Quarter that it had before.

Olives are intended for two uſes when gathered; either to bee ſerved up at the table in collation, or to make Oyle of the largeſt ſort of Olive, is moſt proper for the table, the leſſer more particularly convenient for Oyle: They muſt bee gathered with the leaſt offence to the tree that may bee, the bruiſing of the branches with Poles as ſome uſe it in ſtriking downe the fruit, makes the tree barren: The beſt way therefore is to aſcend the tree by a Ladder, in faire weather (not ſo much for conveniency of the Gatherer; as for the profit comming from the Olive, which is not to bee taken from the tree, but when it is exceeding dry) and pulling them with your hand put them into a Wicker Basket, which you ſhall have carryed up with you to that purpoſe. Thoſe Olives you intend to preſerve or pickle, muſt not have that full ripeneſſe which is requiſite for thoſe you purpoſe to make Oyle of. The Olives which you keepe for Banquets muſt be full of fleſh, firme, faſt, large, and ovall; if you will pickle them, put them into an earthen pot, and cover them with ſalt brine or verjuice, or elſe with Honey, Vinegar, Oyle and Salt ſmally beaten. If you intend to keepe them long, by changing your ſalt brine conſtantly every two or three Moneths, you may effect it.

For the Olives whereof you are to expreſſe your Oyle, you muſt gather no more at one time then what may be made into Oyle that day, and the day following: before you bring them to the Preſſe let them be ſpred upon hurdles, well pick'd, and cul'd; let the hurdles not be too thick ſet with twigs, that the Lees and watry humor of the Olive (which if expreſſed with Oyle would make it extreame full of fæculency, and corrupts it both in the noſtrill and Palate) may expend, waſte it ſelfe, and drop through; ſome there-

 fore

fore that this malignant humor may have a full defluxion before they bring the fruit to the Presse, make a high and well-raised floore, with provision of partitions to keep every dayes gathering seperate; (which is, if your abundance be such that your Presse is not able to discharge you of them dayly) the bottome of these partitions must be paved with a decline descent, that the moistnesse of the Olives may flow away, and be received into gutters or little channels there provided for their transfluxe.

The Olives being thus prepared for the Presse, and the Presse readily provided of all things necessary, *viz.* of Fats, Vessels to receive your severall Oyles, scoopes to draw, and empty out the Oyle, Covers great and small, spunges, pots to carry out the Oyle, tyed about by bands or Cords of Hemp, or Broome-barke; the Mill-stones, Oyle-mills, Pressers, and all other instruments serving thereunto being very well cleansed; and the aire having been before as well heated by a plentifull fire; (if it be not warme enough by its naturall scituation) for the assistance of heat makes all Oyly Liquors resolve and runne more gently and freely, whereas cold astringes, and detaines it. This Presse-house therefore should be so seated, that it may enjoy a full admission and benefit of the South Sunne, that we may stand in need of very little fire, if any at all, such heat being no more assistant to the expression, then accessary to the corruption of the Oyle.

Carry your Olives thus cleansed to the Presse, under which put the whole in new willow baskets (the willow adding a beauteous and innocent color to the Oyl;) the Willow also something staving off the rude strokes of the Presse, that the Olives may be bruised with as little violence, and as much leisure as possible: Nor would it be inconvenient if their skin and flesh were a little broken at the first with a Milstone, so set, that it should not breake the Kernels, which would utterly spoyle the Olive, taking them from the Mill thus prepar'd: let them be stronglier bruised in the Presse, and put foure pound of Salt to every Bushell of Olives. The Oyle which comes first is by much the best, and therefore called Virgin Oyle: the second which comes with more violent expression is fitter for Liniments then the Table: but the last, which is extorted from the drosse, and stones, is of no use but for Lampes; or such sordid employment.

The

The Tuns and Veſſels wherein the Oyle is to be put, muſt be well dreſſed with pitch and gumme, made very clean with warme Lees, and carefully dryed with a ſpunge, into which you may powre your Oyle within thirty dayes after the expreſſion of it, ſo much time being neceſſarily allowed for the ſettling the Lees, which by that will have grounded upon the bottome. The Cellars where the Veſſels of Oyle are to be conſerved, muſt be in a place of conſtant dryneſſe and coldneſſe, heat and moyſture being corrupters of the Oyle; provide therefore a Cellar on the North coaſt of your houſe: and for the better and more neat preſervation of your liquor, poure it rather into glaſſe Veſſels or earthen pots, which (if they be made capacious) are far more convenient then the pitcht retainers we formerly ſpoke of.

Accidents befalling Oyle, with their Remedies: and firſt to recover frozen Oyle.

IF (in the time of Winter) Oyle doth freeze together with his Lees, you muſt put into it twice boyled ſalt, which diſſolves and clears your Oyle from all further apprehenſion of danger; nor need you entertaine a jealouſie that it will be ſalt, ſince unctuous matters (and eſpecially Oyle) have ſeldome any reliſh of it.

To keepe Oyle from becomming ranke.

WHen the Oyle begins to change from his firſt purity of taſte to a diſpoſed rankeneſſe; the remedy is to melt an equall proportion of wax and Oyle together, to which you are to mingle ſalt fried in Oyle before; this you muſt poure into the Veſſel, which compoſition above the prevention of it, when beginning to grow ranke, effects an entire reſtitution to its ſimple pureneſſe, when already affected. Anniſeeds caſt into the Veſſell by a particular attraction, performe the ſame operation.

To

To purifie troubled Oyle.

SOme are of advice, that the applying it to the fire or Sun re-cleares it. Others, if the Veſſell be ſtrong, caſt into it boyling water: how theſe remedies agree with their former aſſertions, (wherein they declare heat ſo unnaturall to Oyle) is beyond my reconciling: I for my part, ſhould rather make an experiment of Vineger, which being caſt into the Oyle by degrees, hath ſuch a penetrating and inquirent faculty over all the parts, that it would without doubt recompoſe it.

To recover Oyle corrupted in the Sent.

TO performe this, take green Olives, pound them, free them from their ſtones, and caſt them into the Oyle: or elſe caſt the crums of Barley bread mixed with corne ſalt: otherwiſe, infuſe in your Oyle the flowers of Melilot: or elſe hang in the Veſſell a handfull of the herb Coriander, and if you finde the putrifying quality yet unexpelled, caſt in divers times of the ſame herbe, and which is better, change his Veſſell; this ill odour others drive away thus: They take Grapes, pick out their Kernells, ſtampe them, and with Salt make them into a lumpe or lumpes, which you muſt caſt into the Veſſell, and after ten dayes faile not to change it: Which muſt neceſſarily be done after the application of any remedy to Oyle growne ranke and putrified, the Veſſell ſtill impairing what the remedy recovers.

Wee have done with the Oyle Olive, after the manner of whoſe expreſſion may bee extorted any unctuous matter of fruits, plants, or ſeeds, namely, Walnuts, Filberds, Almonds (both ſweete and bitter) Nutmegs, the Kernells of Peaches, Pine-Apples, Abricots, Cherries, Plums, Piſtaches, the ſeede of Line, Rape, Cole, Muſtard, Hempe, Poppy, Henbane, the ſeeds or Pipins of Apples, Pears, Cucumbers, Gourds, Melons, and other ſuch like: But that wee may give the Reader a more cleare dilucidation of the manner of preparation, Wee ſhall briefely diſcover the method uſed in the expreſſion of Oyle from Almond and Nutmegs, which will eaſily make

make him apprehend all the reſt; the particular reaſon which perſwades mee to introduce the example of Almonds, is becauſe I have purpoſed before I finiſh this concluding Treatiſe, to diſcourſe particularly of the planting the Almond. Whoſe Oyle if to bee taken inwards, is to bee thus expreſſed.

Pill the Almonds after they have ſteeped ſome time in warme water, pound them in a Mortar of Stone or Marble with a woodden peſtle, make them up in little Lumpes or Loaves, which you may knead with your hands againſt the vapour of warme water, or put them in a glaſſe veſſell of a large content, for ſome foure or five houres: (let the ſeate and Glaſſe bee ſo contrived, that it may rather bee above the water to receive the vapour on its ſides and bottome, then in it) the Almond being thus mollified by the diſpoſition of the moiſture, muſt bee put into a haire cloth or hempen bag, and laid in a preſſe, whoſe bottome muſt be wel heated, hollow, and bending downewards to give the better delabency for the Oyle thus expreſſed, you may bake the droſsy part of the Almonds under the Aſhes, which in time of neceſſity will ſerve for bread, of plenty for a dainty and fatning food to your Poultry. This Oyle is of ſoveraigne excellency to mitigate and remove the throwes and gripes of women newly delivered, and to aſwage the paines of the Collick or Reines, taking it in two ounces of white Wine, or one of *Aqua vitæ*; the Line, Cole, Rape, Walnut, and other need not theſe curious preparations, and their Cakes are of unmatchable nouriſhment to fatten Kine and other Cattle.

Oyle of Nutmegs.

OYle of Nutmeg (which in the South part of VIRGINIA not ſubject to any inconveniences of cold would undoubtedly flouriſh) is thus made: bray them with a wooden ſtamper, afterwards preſſe them out, the plankes being very well heated; to extract it more rich, divide them into little heapes, and ſteepe them three dayes in very good Wine, after dry them in the ſhaddow of the Sunne two whole dayes, then heate them reaſonably in a frying pan upon the fire, ſprinkling them with Roſe-water, and preſently preſſe them. This I judge conveniently ſufficient for Oyles:

Let us descend to the planting of the Almond-tree, which as it hath a peculiar excellency, so without dispute returnes as ample profit.

Of the Almond tree.

THough the Almond tree delight particularly in gravelly places, of which VIRGINIA is too rich to afford a conveniency; yet there is no dispute, but if the Mould wherein you plant them bee mingled with Oyster-shels, or such like, of which there is to bee found inexhaustible Quantities, they will have a greater virtue then gravell to the quickning and ingerminating of this tree; having the perplexed hardnesse of gravell and unctuousnesse of marle united. The soyle thus prescribed; let the seat of your Almond be in a hot place fully exposed to the South or South-West, and it will not onely flourish to your expectation, but its fruit will bee excellently qualified, and in vast abundance: it groweth very well of the stone, which becaus it cannot bee procured new should be kept close in a Vessell of earth; to be transported, set it as you would your Peach; it thrives very well too of the branch or scion, which must bee cut from the top of the tree, and planted as the Olive, the earth rammed very hard about it, and prepared as before, both the stone and the scion should bee steeped for the space of twelve or foure and twenty houres in homed water; the best season to set or plant it in VIRGINIA, is in October and November. This tree will bee of admirable use there, in regard that both that and the Olive will hinder no undergrowing Corne; let neither this tree nor your Olive grow above ten foot in the stock, and in this as in Olives, if you see any branch aspiring higher then his neighbours, represse such ambition by cutting him off, otherwise hee will divert all the sap of the tree into his owne body, and leave his fellowes in a starving and perishing condition; amongst which if you maintaine equality they will altogether consent in gratitude to returne you a plentifull Harvest.

The barren Almond tree will become fruitfull if you lay open his Roots in Winter; or else if you pierce some part of the stock close to the earth, and put through the hole a wedge of Oake, watering it about with stale Urine.

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The bitter Almond will bee capable of bulcoration, if you lay round about his bared Root Swines dung tempered with Urine, casting afterwards much mould upon it, this must bee practised yearly, till hee bee perfectly reclaimed, you will finde the same effect if you bore a hole in the stock of the tree, and put therein a wedge wrapped about with cloth dipped in Hony. Beasts by brousing and cropping of the first and tender branches, change the nature of sweet Almonds into bitter Almonds, are gathered when their Huskes through the heate of the Sunne begin to divide; (I should therefore advise that those made choice of to set, may bee taken before such exact ripenesse, that the heate of the Sunne may not exhale their generating vigour) if when you have beaten them downe you shell them altogether, and wash them in brine, they will become white, and bee preserved a long time; cautionarily that you dry them in the Sunne; their repository or granaries must have good open admissories for an unmoist aire, and lye upon that Coast that is most open to the North-West, being the driest winde in that Country.

The Medicinall excellency of Almonds, is, that they are good for those which are troubled with a clammy fleame in their throat, with weake lungs, and such as are subject to the gravell in the Reines or difficulty of Urine, they are great restorers to nature, and fortifie the parts tending to generation; nor is it onely beneficiall in its fruit, for the Gumme also of the Almond tree arrests the spitting of blood.

of the Fig tree.

THE Fig-tree groweth with an unusuall celerity, as beginning to beare the second yeare from his planting, and is of that nature, that during a moneth or five weekes when Grapes are ripe and good to eate, the Figge also is at that season dayly mature, and fit for the pallate, it may bee planted as the Vine, and affects the same soile; such as have roots grow sooner, but without doubt the branches continue longer; the order you observe in planting the Vine adheare too in this, and it will prosper. The fittest season to plant it is in October, and the succeeding Moneth to the 15. or

twentieth: You shall cause them in planting the better to take root, if you loosen the barque, or which is better bruise it gently at the nether end of the stemme about halfe a foot. To cause them to bee fertile, and bring forth fruits remarkable for fullnesse and verdure, put to his root rich Mould beaten and tempered with the settlings of Oyle Olive, and mans dung, or which I like better then this stercoration if it have already a benine soyle, crop the tops and ends of the branches when they first spring.

To reclaime a wild Fig-tree, water him at the roots with Wine and Oyle mixed together.

If you make a compositon of an equall quantity of salt brine and water. bestow this irrigation in a small trench round about the body of the tree, your Figges are prevented from unripe fallings.

To have early Figs, water the tree with Oyle and Pigions dung, if your ambition be not only to have the earliest, but the latest, take away the first Buds, when they are about the bignesse of a Beane.

To keepe or preserve them, lay them in a pot of Honey full and well stopped, but so that they neither touch the sides of the pot, nor one another. Or take an earthen pot (the Figs being put in) stop it close, and immerge this Vessell to another full of Wine, no taint of corruption will possesse your Figges so inclosed, while the Wine retains his goodnesse.

The plant steeped in brine, or the end thrust into a Sea Onion, becomes much more fruitfull when planted.

This fruit is of great vertue in making the belly soluble in abundance of nourishment and provocation of sweat, dryed and mingled with the flower of Linseed or Fenugreeke, it resolveth and killeth all Impostumes, and hard tumours, in decoctions it assists much in driving away of the Cough, and difficulty of breath, which last vertue the fruit also expresseth very happily, if steeped in *Aqua vitæ*, the night precedent, and taken every morning during the dominion of this disease after you, the Milke of the Fig-tree dropt into the eare killeth the Wormes in it, the Leaves of the Fig-tree rubbed doe provoke the Hemorrhoides; the juice of Figs is of equall felicity in opening them, which to increase his excellency amends all roughnesse, ill conditioned scabs, small pocks, purples, freckles, ringwormes, and other eye-sad blemishes of the

face

face or body therewith anointed, being first tempered with the flower of parched Barley, a little Cotten wool dipped in this juice, and layd upon the aking tooth asswageth the paine.

Of the Pomeganate tree.

THE Pomegranate tree, which may be planted either from the Branch or succour, is one of the most absolute encouragers of an idle person in the world; provided, it be exempt from the intemperate operation of the cold, neither the torrid heat of the Sun, nor the barrennesse of the Soyle, shal make him forgoe his glorious Rubies; no culture or dressing is required by it: yet if it be set in a rich soyle, it will be sure to make an advantage of it to his owne flourishing, and your profit: the wine thereof (for it affordeth Wine as wel as excellency of fruit) may be made after this manner.

Take the ripe kernels, freed and cleansed from their skins, put them into the Presse, and exact the Wine, keep it in Vessels till it is fully fined from all working, which finished, distribute such a quantity of Oyle as may float over all the top of the Vessel, and this preserves it from sowring or corruption.

The Pomegranate apple put in a pot of new earth, well covered, and Luted with clay, and set into an Oven so long, till the Fruit may be resolved into powder, is of very Princely vertue; for (taking the weight of half a crown thereof in red Wine) it miraculously stops the Bloudy flux. It is also good in divers diseases of women, which (because they are more arcanely peculiar to that Sex) I shal forbear to speak of.

Of the Quince tree.

THE Quince tree groweth much sooner from the Root then Branches: it delighteth in a soyle of a moyst and cold nature, and would therefore be planted towards the more umbragious and coole corners of your Garden. The Garden, or reclaimed Quince, beareth two sorts of fruits, to which curiosity hath assigned Sexes, and they are called the Quince and Quincesse; the Male, which is the Quince, is of a more wrinkled, drye, redolent Fruit, and golden colour then the Quincesse. If you graft the Male upon the Female, or *& converso*, the Quinces thence proceeding will be tender,

 and

and may be eaten raw, which without such an Hermaphroditisme must of necessity have beene prepared, to which nature, rather then to eate it crude hath designed it. The use of Marmalade, and its preparation is so publickly known, that it is unnecessary to repeate it.

It is not enough to enjoy the delight of these fruits for the Summer onely: The Winter too in reason should claime a part of our Summer contentments, which cannot bee better expedited then by drying such fruits as are capable of arefaction, and agreeable when dryed, the principall whereof are the Vine or Grape, the Fig, the Peach, and Abricot.

How to dry Grapes, that they may bee kept.

YOur Grapes being at their just ripenesse, select the faireſt out of your Vineyard, for such quantity as you shall use, let them lye thin spread while you prepare a Lye for them, made of faire water and Ashes, proceeding onely from the cuttings of the Vine without any other mixture of wood whatsoever: seeth this lye till you have made a strong and cleare liquor, then taking or straining away the Ashes, put the liquor into a cleane Caldron, set it againe over the fire till it bee ready to seeth; then tying the stalkes of your Grapes with thread, and fastening the thread to such sticks and in such order bunch by bunch, as Chandlers use to dip their Candles, which dip them into this lye foure or five severall times: Which done, let them dry in the Sunne, either so hanging on their sticks, or which is better upon Lattices or Hurdles of Rods, or the like, untill they bee conveniently dry; then barrell them, pressing them very hard and flat in the Vessell, others dry them upon such Lattices or Hurdles without steeping them even as they come from the Vine, and peradventure more successefully.

How to drie Figges.

LET them (as the Grape) bee gathered very ripe; then lay and spread them upon Hurdles or Lattices of Reeds or Osier joyned together, with rifts or vacancies betwixt the covering of

those

those Osiers, that the aire transpiring through those voyd spaces may assist the Sunne in the drying them; but you must bee cautious that during their exposure to the open aire no Raine or Dew incommodate them: When they are dry barrell with the same poise of pressure used to the Grapes. Others take a bigge Reed or Cane of two or three foot in length, boring little holes all the length of it, through which they put little sticks of two foot extent, being the small and sharpe upon which they thread the Figs, till they are very full of them, and so hang the Cane in the Sunne, which dryed they barrell up using the same course as before.

How to dry Peaches and Abricots of all sorts.

WHen they are very ripe, pare off the upper skin, cleave them into foure quarters, dry them as you did your Figs, barrell them and keepe them for the Winter.

The manner how you shall prepare them to eate is this; provide an earthen pot, and after you have washed your Peaches in faire water, put them into the pot with as much Wine as will cover the Peaches, then seeth them halfe a quarter of an houre. They may bee made ready without boyling thus; let them infuse three or foure dayes in Wine, (which way they are much better) put to them beaten Cynamon, and thus they will last a Moneth in the Wine, eaten every morning they are very wholesome, and provoke a good appetite.

The fittest seasons for sowing of seeds.

TO prescribe Rules according to our Climate, to that of VIRGINIA, may have much of affection, but without all peradventures, little of Wisdome. Wee must therefore seeke for a nearer correspondence in parallells. Having therefore seene some letters of an ancient date written by Frenchmen, then employed in VIRGINIA, to their Intrusters, wherein they confesse that of all the Provinces of FRANCE: None came so neare to that noble Countrey, as LANGUEDOCK and PROVENCE, two of the Eyes of that Kingdome, abounding withall the delights and delicacy

cacy that ITALY can pretend to, or SPAINE boast of; I could not but apprehend that their times of sation and insition, of planting and replanting, might in some measure correspond with that place where the English are now seated, and having seene a regular distribution of the moneths and seasons in the yeare for sowing, grafting, and other offices belonging to the industrious Lovers of Agriculture; I should both unsatisfie my owne conscience, and disoblige that Countrey, and its Christian Inhabitants, if I did not publish it with the same resentment of affection I received it; not that any should bee so pinioned to these Precepts, that neither weather, inconveniency, or want of opportunity should make him recede from the punctuall observation of them: But I speake it out of a very strong confidence that the observations of the seasons according to these prescriptions will sort well with VIRGINIA in generall, and the Planters in particular, to whom it is intended, and indeed it is as exact a Directory as any yet published.

I am not ignorant that Criticks will laugh at this; much good doe it them, and why so many Moneths for the same seed? Why so many Repetitions? My Exceptionist forgets that wee not onely covet to have things early, but their continuance: Will it offend him that wee have Artichokes in May? and July both? Because wee may have Cabbage, Lettuse in April, shall wee bee forbidden to have any in May: the principall scope of this directer was to show how long such and such seedes might bee continued to bee sowen, and in what Moneth and Moone, if hee apprehend it not; I can send him to no Moneth, but that of June, nor Moone, but that of Midsommer.

He

He that will sow seed, must know that,

Some may be sowen at all times of the Moneth and Moone, as,

Asparagus,
Colewort of all sorts,
Spinage,
Lettuse,
Parsnips,
Reddish.

Others would be sowed in a certaine Moneth and Moone, as there must bee sowen in February, the Moone being

New

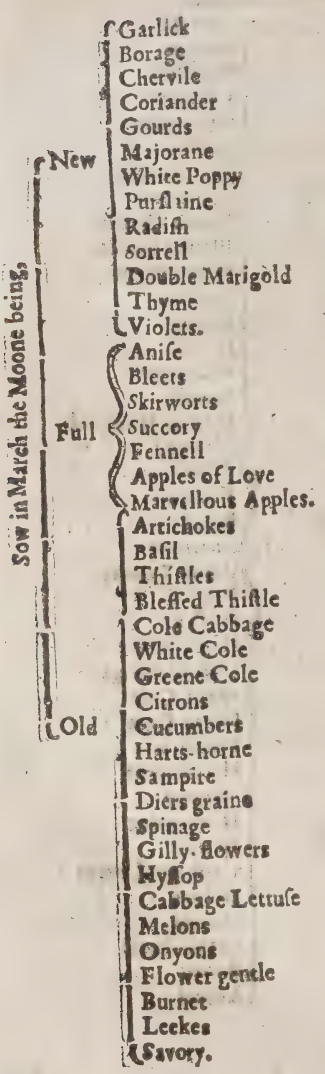
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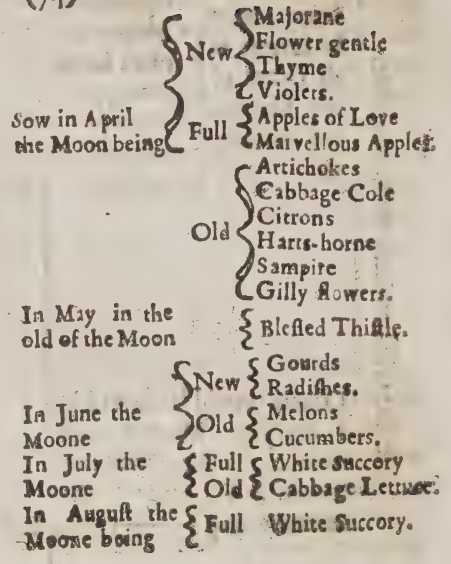
Old

Spike
Garlike
Borage
Bugloss
Cheruse
Coriander
Gourds
Water cresses
Majorane
Palma Christi
Flower gentle
White Poppy
Purslane
Radish
Rocket
Rosemary
Sorrell
Double Marigold
Thyme.

Anise
Violets
Blites
Skirworts
White Succory
Fennell
Parsly.

Holy Thistle
Cole Cabbage
White Cole
Green Cole
Cucumbers
Harts-horne
Sampier
Diers graine
Spinage
Cabbage-Lettuce
Melons
Onions
Larkes-heele
Burnet
Leekes.


Sow in March the Moone being.
New
Garlick
Borage
Chervile
Coriander
Gourds
Majorane
White Poppy
Purſlaine
Radiſh
Sorrell
Double Marigold
Thyme
Violets.
Full
Aniſe
Bleets
Skirworts
Succory
Fennell
Apples of Love
Marvellous Apples.
Old
Artichokes
Baſil
Thiſtles
Bleſſed Thiſtle
Cole Cabbage
White Cole
Greene Cole
Citrons
Cucumbers
Harts-horne
Sampire
Diers graine
Spinage
Gilly-flowers
Hyſſop
Cabbage Lettuſe
Melons
Onyons
Flower gentle
Burnet
Leekes
Savory.


Sow in April the Moon being
New
Majorane
Flower gentle
Thyme
Violets.
Full
Apples of Love
Marvellous Apples.
In May in the old of the Moon
Bleſſed Thiſtle.
In June the Moone
New
Gourds
Radiſhes.
Old
Melons
Cucumbers.
In July the Moone
Full
White Succory
Old
Cabbage Lettuce.
In Auguſt the Moone being
Full
White Succory.
Old
Artichokes
Cabbage Cole
Citrons
Harts-horne
Sampire
Gilly flowers.

Herbes

Herbes growing of ſeedes that are ſowne may bee tranſplanted at all times, except Chervils, Arrage, Spinage, and Perſely, which are nothing worth when they are tranſplanted; ever obſerved that ſuch tranſplantation bee in a moiſt, rainy weather, otherwiſe they muſt bee very diligently watered.

You may take notice that the choiſe and age of ſeedes is double, in chuſing them you are to regard that they bee ripe, full, heavy, firme, groſſe, and of a good colour, not falling to powder through rottenneſſe or bruiſes.

Some grow bettter of new ſeedes, as Leeks, Cucumbers.

Others grow better of old ſeeds, as Coriander, Perſley, Savory, Beets, Origanum, Creſſes, Spinage, Poppey.

Further obſerve, that you muſt preſerve from cold, Lettuſes, Artichokes, Baſill, Cabbage Cole, Diers graine, Melons, fifteene dayes after they put forth from the earth.

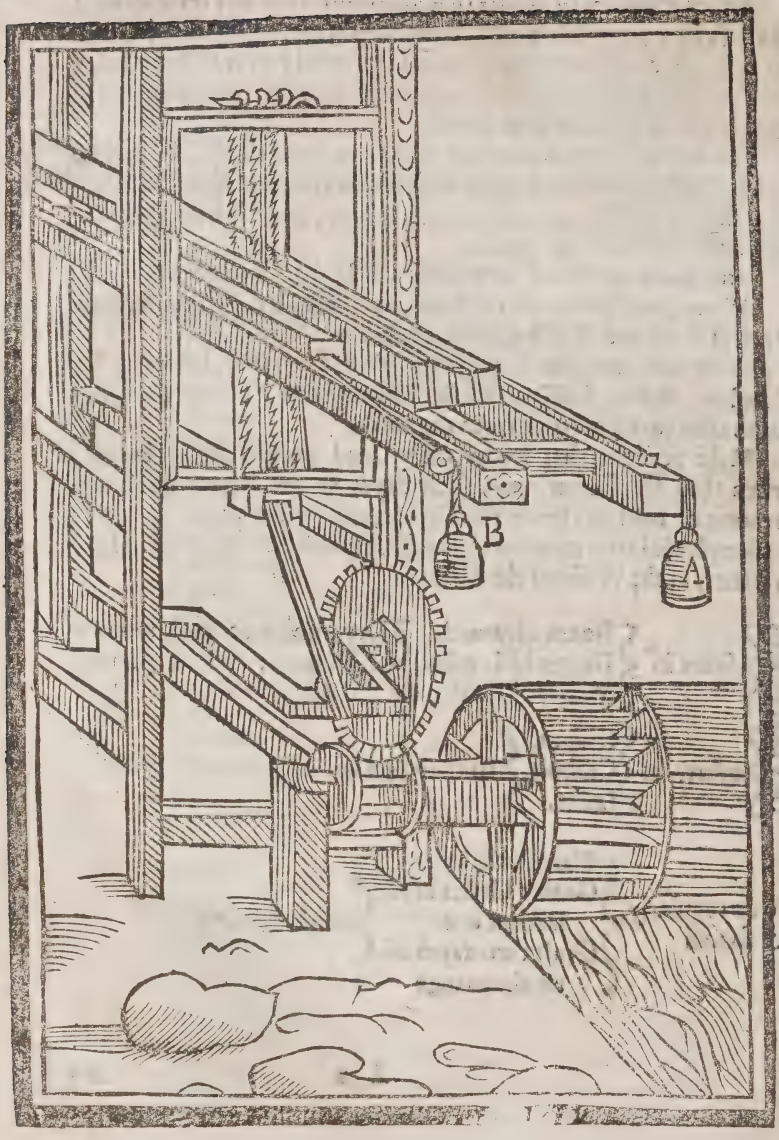
Make account that ſeedes thrive and proſper much better, when they are ſowen upon ſuch dayes as are betweene the extreames of cold and heate, then in hot, cold or dry dayes.

Bee pleaſed to remember, that ſeedes muſt bee gathered in faire weather, in the Wane of the Moone.

They muſt be kept { ſome in { Boxes of wood, / Bagges of Leather, / Veſſels of Earth, } { Dry, and not layd upon the ground, but kept very cleane.

They muſt be kept { others, as { Onions, / Chibols, / Leeks, } { In their Huske.

To do regularly, we ſhould { Plant in the laſt / Gather Grafts in the laſt but one / Graft two dayes after the change } of the Moone.


B
A

An Explication of the Saw-mill; an Engine, wherewithly force of a wheele in the water, to cut Timber with great speed.

THIS Engine is very common in Norway and Mountaines of Sweden, wherewith they cut great quantity of Deal-bords; which Engine is very neceſſary to be in a great Towne or Forreſt, to cut Timber, whether into planks or otherwiſe. This heer is not altogether like thoſe of Norway: for they make the piece of Timber approch the Sawes on certaine wheels with teeth; but becauſe of reparations which thoſe toothd wheeles are often ſubject unto, I will omit that uſe: and in ſtead thereof, put two weights, about 2. or 300. pound weight apiece, whereof one is marked A. the other B. The Cords wherewith the ſayd weights doe hang, to be faſtned at the end of the 2. peeces of moving wood, which ſlide on two other peeces of fixed wood, by the meanes of certaine ſmall pulleys, which ſhould be within the houſe, and ſo the ſayd weights ſhould alwayes draw the ſayd peeces of moving wood, which advancing alway towards the Sawes riſing and falling, ſhall quickly be cut into 4. 5. or 6. peeces, as you ſhall pleaſe to put on Saws, and placed at what diſtance you will have for the thickneſſe of the planks or bords ye will cut: and when a peece is cut, then let one with a Lever turne a Rowler, wherto ſhall be faſtned a ſtrong

Cord which ſhall bring backe the ſayd peece of wood, and lift again the weights: and after put aſide the peece already cut, to take againe the Sawes againſt another peece of wood. Which once done, the ingenious Artiſt may eaſily convert the ſame to an Inſtrument of threſhing wheat, breaking of hempe or flax, and other as profitable uſes.

FINIS.



D650
W72v2
1951

-30653.
Negro Steamship
& Stile
Feb. 1951

